CLASS

ENVIRONMENTAL ASSESSMENT

For

MUNICIPAL ROAD PROJECTS

Municipal Engineers Association

CLASS ENVIRONMENTAL ASSESSMENT

FOR

MUNICIPAL ROAD PROJECTS

Prepared by:
The Municipal Engineers Association

Ontario

Office of the Minister

Ministry of the Environment

135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
416/323-4359

ENVIRONMENTAL ASSESSMENT ACT

SECTION 14

NOTICE OF APPROVAL TO PROCEED WITH THE UNDERTAKING

RE: A Class Environmental Assessment for all Municipal Road Projects

Proponents: The Corporation of the City of Guelph
The Corporation of the City of Sault Ste Marie
The Municipality of Metropolitan Toronto
The Regional Municipality of Durham
The Regional Municipality of Niagara
The County of Lanark

EA FILE NO. 2-81-0002-000

TAKE NOTICE that the period for requiring a hearing, provided for in the Notice of Acceptance of the Environmental Assessment for the undertaking, expired on April 1, 1986. I received one notice requiring a hearing by the Environmental Assessment Board with respect to approval to proceed with the undertaking. I have decided, pursuant to clause 12(2)(b) of the Act, that a hearing is unnecessary.

Having considered the purpose of the Act, the Environmental Assessment of the undertaking as amended and accepted and the submissions received, I hereby give approval to proceed with the undertaking subject to the conditions in the attached schedule.

REASONS:

My reasons for giving approval are:

1. On the basis of the proponents' Environmental Assessment, the Review, the amendment and submissions, the proponents have established appropriate planning procedures to ensure that the advantages of the projects carried out pursuant to this approval will outweigh the disadvantages of these projects.

2. The effectiveness of this Environmental Assessment in meeting the Act's purpose will be monitored and appropriate changes can be made to the Environmental Assessment during the approval period of five years.

Dated at Toronto the 9th of April , 1987

Minister of the Environment

Approved by
O.C. No. 837 /87

SCHEDULE TO THE NOTICE OF APPROVAL TO PROCEED WITH THE UNDERTAKING DESCRIBED IN THE CLASS ENVIRONMENTAL ASSESSMENT FOR MUNICIPAL ROAD PROJECTS

DATED APRIL 9 , 1987

1. Except as provided by the subsequent conditions, the proponent shall comply with all provisions of the Environmental Assessment as amended and accepted which are herein incorporated by reference.

2. Notwithstanding condition 1, where a project approved hereby reaches the contract drawing stage (shown on the flow chart in the Environmental Assessment) by October 11 , 1987, the proponent of the project need not comply with the other requirements of this approval. (*The date selected will allow for a six-month phased implementation period.)

3. For the purposes of condition 2, "contract drawing stage" means that stage where the planning and design of a project is complete such that drawings to be used for tendering purposes or during construction can be prepared for signature by the senior municipal official authorized for such purposes.

4. Where two or more Environmental Assessment approvals affect a municipal road project, to which this Environmental Assessment approval applies, the requirements of each Environmental Assessment approval shall apply except to the extent the Minister has by notice in writing to the proponent ruled that one or more provisions in conflict with another provision shall not apply.

5. The Minister shall consider all requests for amendment to the Environmental Assessment submitted by the 6 proponents or submitted by the Municipal Engineers Association on behalf of the 6 proponents, and where in the opinion of the Minister, an amendment is necessary, shall cause to be issued to the public, any potentially affected municipality and provincial ministry and agency, a Notice of Proposed Amendment, allowing at least 30 days for comment. In reviewing these comments, the Minister shall have consideration for the intent of the Environmental Assessment and the requirements of the Environmental Assessment Act. The Minister may refer the amendment to Cabinet for approval, and if approved shall cause a Notice of Amendment to be given to all persons who made submissions and shall place a copy of the Notice in the Public Record.

6. This approval shall terminate on the earlier of:

   (a) the date on which any new approval is issued for the undertaking under the Environmental Assessment Act and

   (b) subject to condition 8, the fifth anniversary of this approval.

7. Within four (4) years following this approval, tne proponents or the Municipal Engineers Association, acting on the behalf of the proponents, shall advise the Minister of the Environment regarding tne appropriateness of extending this approval.

8. For the purposes of condition 6(b), the Minister of the Environment may from time to time specify a later date by a notice in the Ontario Gazette.

9. Notwithstanding the Environmental Assessment's division of activities related to roads into four categories, one of which is described in Schedule D as requiring individual environmental assessments, any activity which is listed in Schedule D may be treated as a Schedule C activity.

10. Where the proponent determines that, subject to the planning and design process described in the Environmental Assessment, that an activity listed in Schedule C or Schedule D merits an individual environmental assessment, the proponent shall prepare an individual environmental assessment for the project and this approval shall not apply any further to the project.

11. In accordance with condition 10, the preamble to Schedule C is hereby revised to read: "Subject to the unconditional approvals and conditional approvals cited in Schedules A and B, the following projects are proposed to be subject to the procedures of the Class EA process, unless a proponent determines that an activity listed in this Schedule merits an individual environmental assessment based on its scale and environmental significance. The proponent shall then prepare an individual environmental assessment for the project and the approval under the Class EA shall not apply any further to the project."

12. Conditions 9, 10 and 11 do not prevent or inhibit the operation of the bump-up provision described in section 5.2 of the Environmental Assessment.

TABLE OF CONTENTS

		Page No.
SUMMARY		III
GLOSSARY OF TERMS		IX
1.0	INTRODUCTION	1
1.1	PREFACE	1
1.2	PROVISION FOR PHASING PROJECTS INTO CLASS EA	3
2.0	PLANNING AND DESIGN PROCESS	4
2.1	FLOW CHART	5
2.2	EXPLANATION OF THE PLANNING AND DESIGN PROCESS	6
3.0	DECRIPTION OF THE PROJECTS, PURPOSE AND ALTERNATIVES	12
3.1	NEW ROADS	12
3.2	ROAD WIDENING, ADJUSTMENTS TO ALIGNMENTS, GRADE AND CROSS SECTION AND OPERATIONAL IMPROVEMENTS	13
3.3	NEW OR IMPROVED INTERCHANGES, GRADE SEPARATIONS AND WATER CROSSINGS (INCLUDING PEDESTRIAN, RECREATIONAL AND AGRICULTURAL CROSSINGS)	18
3.4	SERVICE FACILITIES	21
4.0	ENVIRONMENT	22
4.1	DESCRIPTION OF THE ENVIRONMENT	22
4.2	DESCRIPTION OF THE EFFECTS ON THE ENVIRONMENT	25
4.3	MITIGATING MEASURES	32
5.0	PUBLIC INVOLVEMENT	34
5.1	OPPORTUNITIES FOR PUBLIC INVOLVEMENT	34
5.2	PROVISION FOR CHANGING PROJECT STATUS - (BUMP-UP)	37
6.0	DOCUMENTATION	40
6.1	ENVIRONMENTAL STUDY REPORT - (E.S.R.)	40
6.2	REVISIONS AND ADDENDA TO ESR	46
7.0	CLASS EA AMENDING PROCEDURE	48
7.1	TERMINATION OF APPROVAL	48

TABLE OF CONTENTS
(Continued)

		Page No.
APPENDICES		
1.	PROPOSED STATUS OF MUNICIPAL ROAD PROJECTS UNDER THE ENVIRONMENTAL ASSESSMENT ACT	51
2.	TYPICAL MITIGATING MEASURES FOR POTENTIAL ENVIRONMENTAL EFFECTS	60
3.	ONTARIO ENDANGERED SPECIES LIST	71

SUMMARY

ENVIRONMENTAL ASSESSMENT ACT

RE: An Environmental Assessment received from The Municipal Engineers Association (MEA) of Ontario for the establishment of a Municipal Road Class Environmental Assessment.

Environmental Assessment File No. MU-0013/2-81-0002-000

This document deals with that class of Municipal road projects where an existing municipal road requires any physical modification, notwithstanding cost, over and above maintenance activity or operational improvements.

This document also deals with any new municipal road project on a new right-of-way.

It is to serve as a statement, (for public use), of the decision making process of those municipalities who adopt it for their use in the development and implementation of a project.

It is also to serve as an approved process under the Act for municipal staff in the planning, design and construction of municipal road projects, to ensure that the requirements of the Environmental Assessment Act are followed.

For each project undertaken in accordance with this Class EA, an Environmental Study Report (E.S.R.) will be written, covering the headings discussed below, and placed in the Public Record at the proponent municipality's Clerk's Offices.

This document provides municipalities with an approved methodology to continue the reconstruction/ construction of municipal roads in accordance with the Environmental Assessment Act.

1. PURPOSE OF THIS DOCUMENT

The projects in this Class EA are undertaken due to an identified deficiency in an existing municipal road system, usually typified by poor traffic flow or poor operational characteristics. This would be due to one or more of the following undesirable elements:

a) traffic congestion;
b) unsafe traffic conditions;
c) poor structural conditions;
d) excessive maintenance costs;
e) geometric deficiencies; and/or
f) low system compatibility.

Thus, a municipal road may have to be constructed or reconstructed in order to provide a facility that is safe and convenient for the travelling public, thereby providing an acceptable solution to the identified deficiency.

2. DESCRIPTION OF THE UNDERTAKING

The undertaking provides a methodology for planning projects covered by the Class EA, and for preparing E.S.R.'s for specific projects if required by the provisions of the Class EA.

This Class EA sets out the status under the EA Act and the planning process for:

a) the reconstruction of any existing road facility;

b) the construction of new roads;

c) projects subject to a screening process; and

d) those maintenance and operational improvement activities which are exempt from the provisions of the Act.

It should be noted that throughout the undertaking ample provisions for public review have been provided. If the site specific project has significant negative net environmental effects which cannot be resolved by the proponent, then the project can be bumped up to an individual, or "full", environmental assessment.

3. JUSTIFICATION FOR THE UNDERTAKING

Class EA's are intended to cover projects that are relatively small in scale, recur frequently, and have a generally predictable range of effects which, though significant enough to require environmental assessment, are likely to cause relatively minor effects in most cases.

It is felt that the projects covered by this Class EA meet this stated intent. The full weight of the EA Act is therefore not warranted for projects of the nature covered by this document.

4. DESCRIPTION OF THE POSSIBLE ALTERNATIVES

The alternatives to a Class EA would be:

a) each municipality prepare its own class document;

b) do nothing, i.e., do individual environmental assessments for each municipal road project; or

c) request project-specific exemptions.

5. SCOPE

The undertaking as submitted is designed to provide a site specific methodology for municipalities in the exercise of their responsibility to provide for the needs and wants of the public, and to perform their role in the general provision of local road facilities and second tier arterial routes, (complete with the necessary structures within the Province of Ontario).

The methodology provides for site specific considerations such as identifying the problem, and quantifying it in terms of the cost to the environment, in order to determine a solution to the problem.

The quantification of the costs of a project is intended to include a review of the alternative solutions, the environment affected by the alternative solutions, and the remedial measures needed to render a "best" solution to the originally identified problem.

Since municipalities have no duty to perform beyond their ability to pay, the municipal proponent under this Class EA will, of course, have to balance the needs and wishes of the community for transportation facilities, against the costs of necessary mitigation measures. In some cases, the cost of the mitigating measures may be prohibitive and may limit alternatives.

The municipality, as a concerned corporate citizen, has, by virtue of its close relationship with its electors, both a duty to protect valuable, natural and man-made resources, and a responsibility to supply an effective and efficient transportation system within its boundaries.

6. GEOGRAPHIC AREA/BOUNDARIES WITHIN WHICH PROJECTS COVERED BY THIS UNDERTAKING WILL BE EXECUTED

While the geographic setting for projects covered by this class will vary considerably throughout Ontario, for the purposes of environmental analysis, they can be separated into the following broad categories:

For an urban area, those projects found in:

V

a) a stable residential area;

b) a pressured residential area;

c) a recreational area;

d) an institutional area;

e) a commercial area; and

f) an industrial area.

For a rural area, those projects found in:

a) a stable agricultural area;

b) a pressured agricultural area;

c) a recreational area;

d) undeveloped areas;

e) a commercial area; and

f) an industrial area.

While a map and appropriate description of the area related to the site specific project shall be a part of an E.S.R., it is impossible to provide specific geographic setting information in this document.

7. THE ENVIRONMENT AFFECTED OR POSSIBLY AFFECTED, EITHER DIRECTLY OR INDIRECTLY

The broad settings described in (6) point out the diverse nature of the environment which could be affected by the projects in this class. Each E.S.R. will include a discussion of the environment affected by the specific project it pertains to under this class.

Furthermore, it is recognized that any project will alter the environment in some manner. The type(s) and magnitude(s) of environmental alteration(s) resulting from a particular project will depend on:

a) the specific characteristics of the solution to the identified problem, (including not only what is done, but how, when and where it is done); and

b) the specific characteristics of the environment within which, or in the vicinity of which, the project is carried out.

The significance of any type of environmental alteration will depend not only on its magnitude, but also on the importance of the environmental components which are altered. The importance of a component may vary according to its abundance, availability or accessibility, necessity, or desirability. Each of these may, in turn, vary with time, location or perspective. It should be noted that an integral component of the above evaluation must include the "environmental" cost of allowing the identified problem to continue.

8. REMEDIAL MEASURES FOR ADVERSE EFFECTS

Owing to the general nature of projects covered by the Class EA undertaking, it is impossible to identify specific remedial measures. However, the undertaking does provide ample opportunity for the identification of acceptable remedial measures, as well as for the provision of monitoring necessary to ensure that each specific project is built in accordance with the approved design, inclusive of all environmental considerations.

9. ADVANTAGES AND DISADVANTAGES TO THE ENVIRONMENT

The class document will help to standardize the planning of municipal road projects inclusive of the environmental review process. This standardization will, in turn, allow the review agencies and the public to better understand the municipality's need to modify an existing facility, or create a new facility in response to the requirements of the community.

The major advantage is that municipalities will, by following the steps outlined within the undertaking, be able to follow an acceptable path in the reconciliation of the needs of the community and the environmental costs associated with change. Municipalities will also be more aware of the effects that their activities have on the environment.

Projects developed under this Class EA document will, in site specific terms, outline the advantages and disadvantages to the environment.

Site specific projects carried out under this Class EA will report and document all related studies in the E.S.R.

10. STUDIES AND REPORTS DONE IN CONNECTION WITH THE UNDERTAKING

In order to formulate this Class EA document, the Committee established by the Municipal Engineers Association has:

a) circulated a preliminary outline to all municipalities complete with a Questionnaire. Of 856 sent out, 164 were completed and returned.

b) circulated a preliminary outline to all Provincial Ministries and other affected organizations for their comments.

c) circulated a draft dated October, 1981 to all Municipalities, Provincial Ministries, members of the MEA, ACRO's October 1981 Conference and selected public interest groups.

11. BACKGROUND INFORMATION

In the preparation of this document, the MEA working group examined the following examples of Class EAs available in 1982:

a) the B-1 to B-7 series of Class EAs as prepared by the Ministry of Transportation and Communications (approved);

b) the B1-B4 series of Class EAs as prepared by TATOA (approved);

c) the two Class EAs prepared by MOE for sewer and water works, respectively (under review);

d) Ontario Hydro's Class EAs regarding transmission lines (approved); and

e) the Ministry of Natural Resources' Class EAs regarding resource management activities (under review).

GLOSSARY OF TERMS

ALTERNATIVE SOLUTIONS - alternative ways of solving a documented deficiency, including the alternative of doing nothing.

ALTERNATIVE DESIGN CONCEPTS - alternative ways of carrying out the preferred alternative solution.

BUMP-UP - refers to a decision by the proponent or by the Minister that the environmental significance of a project is of such proportion that the procedures for environmental assessment provided for under the Class EA process are not sufficient, and that an individual environmental assessment is required.

CLASS ENVIRONMENTAL ASSESSMENT (EA) PROCESS - a planning process used for a group of projects which are relatively small in scale, recur frequently, have a generally predictable range of effects, and have relatively minor environmental significance.

CLASS EA DOCUMENT - a report documenting the Class EA process which is formally submitted under the Environmental Assessment Act. Projects covered by the Class EA may be implemented without having to seek further approvals under the EA Act provided that the Class EA process is followed.

COMMITTEE - refers to the special working group established by the Municipal Engineers Association to prepare Class EA documents for use by municipalities.

CONSTRUCTION PACKAGE - refers to the documentation used to direct the contractor during project construction.

CONTRACT DRAWINGS - drawings being prepared for signature by the Senior Municipal Official prior to construction, that will be used during construction.

CONTRACTOR - refers to anyone who carries out the construction of a project including municipal staff.

COST - means the most current estimate prepared by an engineer, architect, official, planner or construction contractor, of the cost of a project which estimate has been accepted by the municipality as the basis upon which the project is to be proceeded with. It does not include any cost for:

i) the acquisition of land;

ii) feasibility studies and design carried out for the project, or

iii) the operation of the project.

Cost includes the capital cost of all aspects of a project required to solve an identified problem. If the separate projects (e.g., watermain and road) are independent of each other, but being constructed at the same time for efficiency purposes, then the costs can be considered to be separate.

DEFICIENCY - refers to a documented shortfall in an existing road facility, for purposes of existing or future needs.

ENVIRONMENT - refer to section 1(c) of the Environmental Assessment Act.

ENVIRONMENTALLY SENSITIVE AREAS - natural areas having significant natural resource value and/or important ecological functions, but which are susceptible to disturbance from human activities. They may include one or a combination of wetlands, river valleys, woodlands, small lakes, or hydrogeological features (moraines or spring areas).

ENVIRONMENTAL STUDY REPORT (ESR) - refers to the documentation for a specific project which illustrates the planning and decision making process which has been followed, and the mitigating measures which will be taken to ensure that the Environmental Assessment Act has been adhered to.

EXEMPT PROJECT - refers to a project for which approval by the Minister of the Environment is not required under the Act.

EXISTING ROAD - a road currently being used to carry vehicular traffic for at least three seasons of the year.

FULL ENVIRONMENTAL ASSESSMENT - refers to an individual environmental assessment which requires the submission of a formal document for an undertaking to which the Act applies, and which is not exempt nor covered by Class EA approval.

GRADE SEPARATION - a grade separation is considered to be a crossing of a railway and a road at different levels or a crossing of two roads at different levels without interconnecting ramps.

HAZARD LANDS - lands which, because of their physical characteristics in combination with their location, sustain a risk for the occupants of loss of life, property damage and social disruption if developed (e.g., flood plain, steep slopes, unstable soils, etc.).

INDIVIDUAL ENVIRONMENTAL ASSESSMENT - see Full Environmental Assessment.

INTERCHANGE - an interchange is considered to be a crossing of two roadways at different levels with connecting ramps for traffic turning between the intersecting roadways.

INTERMITTENT WATER COURSES - all water courses which discharge periodically after heavy rains or spring break-up and which may become dry at times.

LAND FOR FENCE PROPERTY TRANSFER - refers to owner initiated transfers of private land to a municipality for use as right-of-way in exchange for construction of a property fence.

LOCALIZED OPERATIONAL IMPROVEMENT - refers to structural changes to an existing roadway at specific spot locations, and includes turning lanes, storage lanes, U-turn lanes, etc.

MINIMUM MUNICIPAL STANDARD - (CULVERT) - the minimum culvert size which the municipality requires for new installations across the municipality's roads.

MINIMUM MUNICIPAL STANDARD - ROAD SURFACE - refers to the municipality's lowest standard travelled width (where one exists) for the road being considered (i.e., a road of the same purpose, use and number of lanes). In the absence of a Municipal Standard, the Geometric Design Standards for Ontario Highways may be adopted.

MINISTER/MINISTRY - refers to the Minister/Ministry of the Environment.

NEW ROAD - refers to the construction of an improved surface for vehicular traffic on a new road allowance where both sides of the road allowance are entirely separate from the previous right-of-way;
- also refers to construction of a road on an existing road allowance where no road surface existed before.

NOISE ATTENUATION - the act of reducing sound transmission by a variety of means including noise barriers, sound reducing pavement surfaces, road cross-section or combinations of same.

NOISE BARRIER - such structures as walls, berms, and combinations of the two which are effective in reducing sound transmission and propagation.

NOTIFICATION - where notice is given or service is made by registered mail, the giving or service shall be deemed to be made on the seventh day after the day of mailing, unless the person to whom notice is given, or on whom service is being made, establishes that he did not, acting in good faith, by absence, accident, illness or other cause beyond his control, receive the notice, order, approval or other document until a later date.

Where a municipality is of the opinion that because the persons who are to be given notice are so numerous, or for any other reason it is impracticable to give the notice to all or any of the persons individually, the municipality may instead of doing so, cause the notice to be given to the persons by public advertisement or otherwise as the municipality may direct, and the date on which such notice is first published or otherwise given as directed, shall be deemed to be the date on which the notice is given.

PROJECT - refers to a specific activity planned and implemented in accordance with a Class EA approval. A project consists of all those activities necessary to solve a specific transportation problem. A project should not be broken down into component parts, with each part addressed separately. For example, consider a new road link that includes a bridge. The entire road and the bridge must be handled as one project rather than as two separate projects. If the component actions are interdependent, then all of the components should be dealt with as a single project. It is not acceptable to piecemeal - or break up - a large project into smaller component actions for the purpose of reducing responsibility under the Act.

A project can be proposed in response to a larger activity. For example, some storm sewer works might be associated with a municipal road widening project. If the storm sewers are proposed in isolation they would be an activity subject to Municipal Sewage and Water Class EA. If the storm sewers are proposed in response to the road project, the sewers would be treated as an effect of the road project and be dealt with under this Class EA.

Where a project consists of components having differing statuses under the Act if carried out separately, the project would take on the status of the component requiring the more rigorous treatment.

PROPONENT - for the Class EA document, the proponent is a group of municipalities in Ontario as represented by the Municipal Engineers Association, which submitted the Class EA document for approval under the EA Act. For a project planned in accordance with the approved Class EA, the proponent is the Municipality developing the project.

PUBLIC - includes interest groups, associations, utilities and individuals.

REALIGNMENT - where the centreline of construction is not coincident with that of the original travelled road.

RETIREMENT - is the taking out of operation, abandonment, removal or disposal (including sale or demolition) of a facility.

REVIEW AGENCIES - refers to government agencies other than the proponent.

ROAD CAPACITY - is defined as the number of travelled lanes and does not differentiate between various lane widths to accommodate differing volumes of traffic.

ROAD WIDENING - refers to the widening of the travelled surface of an existing road and may include the widening of the right-of-way but does not include localized operational improvements.

SAME PURPOSE, USE, CAPACITY AND LOCATIONS - refers to the replacement and/or upgrading of a structure or facility or its performance, where the objective and application remain unchanged, and the volume, size and capability do not exceed the minimum municipal standard (defined above), and there is no substantial change in location. A change from rural to urban cross section is deemed to be for the same purpose, use and capacity if the reconstructed cross section has the same number of lanes and is essentially in the same location. If there is any doubt as to whether a change in location is or is not substantial, an opinion should be obtained from the potentially affected government agencies and members of the public.

SCREENING - refers to the contact made by the proponent with appropriate agencies of the government, adjacent property owners, and the potentially affected public, for the purpose of giving notification of, and soliciting comments on, a proposed project.

THE ACT - the Environmental Assessment Act or the EA Act.

UNDERTAKING - in the case of a Class Environmental Assessment, the term undertaking refers to a project that is within the definition of the group of activities which is covered by the Class EA, which is planned in accordance with the process set out in the Class EA.

WATER CROSSING - a water crossing is considered to be a culvert, bridge, tunnel, causeway or ferry crossing a naturally-occurring surface drainage feature such as a lake, swamp, marsh, bay, river, stream or man-made drainage facility such as a ditch, canal or municipal drain. As numerous variations in design are possible, the following distinguishing features will be used to differentiate between culverts, bridges and causeways:

1. culverts are usually covered by fill material;
2. bridges consist of a deck supported by abutments and possibly piers;
3. causeways are embankments constructed over bodies of water or wetlands and normally include culverts and/or bridges.

1.0 INTRODUCTION

1.1 PREFACE

A Class EA is a planning procedure developed to ensure that the potential social, economic and natural environmental effects are considered in planning certain projects. The proponent of a proposed work (e.g., road widening included in this Class EA) does not have to apply for formal approval under the Act provided it is planned in accordance with the approved procedure. The Class EA, therefore, provides a significant relief from the full weight of the Environmental Assessment Act, while still achieving its purpose by incorporating environmental considerations into a municipality's ongoing project planning.

This document is referred to as a Class Environmental Assessment. It describes what a Class EA is and the group of projects which are included in the Class. It also describes the purpose of the projects and the process leading to their construction. The following projects are subject to this Class EA process:

- new roads;
- widening of an existing highway by adding lanes;
- realignment and adjustments to alignment, grade or cross-section;
- new interchanges;
- new grade separations;
- new water crossings not associated with a new road;
- modified water crossings;
- service facilities.

The operation, maintenance or retirement of facilities under the Class EA may influence the significance of environmental impacts. In most cases, these impacts will be negligible, but in some cases, major impacts may result. It is expected that the significance of impacts will be identified during the course of the planning process, and effective mitigation chosen, or the project will be reassessed.

A project is initiated in response to a specific problem(s), and is the result of a solution determination process. It is then usually scheduled for construction. By this time, planning decisions associated with the project have already been made. A description of this initial decision making process is described in this document under the heading "The Planning and Design Process".

Component parts of the process, such as, defining and establishing the purpose of a project, considering alternatives to the project, establishing the environment affected, determining the effects of the project on the environment and methods of minimizing such effects, are also described in the class document.

Although they are not subject to the full Class EA planning process, certain projects are also considered to be part of the undertaking. These projects, which are generally minor in scale, are grouped into two categories, reflecting two levels of minor environmental effects. For projects in the least significant group (Schedule A), a proponent is not required to follow the planning process outlined in the Class EA. For projects in the second group, the proponent is only required to follow the screening mechanism outlined in Schedule B of the Class EA, to ensure that potential effects are not overlooked.

The Class EA document recognizes that at the time it comes into force, various projects will be at different stages in the planning process. To accommodate this, a "phasing-in" provision is provided. This phasing-in provision will permit projects to enter the planning process at whatever stage they are at, **on the day on which the Class EA is approved (April 9, 1987).** For example, if the need for a project has already been established, and planning is at a stage where a preliminary design has already been selected, it is only necessary to enter the planning stream at that point. A detailed description of how projects may be "phased-in" follows.

1.2 PROVISION FOR PHASING PROJECTS INTO CLASS EA

It is recognized that municipalities cannot suspend work on construction projects while waiting for a municipal class document to be prepared. Accordingly, at the time such a document is approved, site specific projects will be at different stages in the planning process. Some will be at a stage where a preferred solution to the problem has been selected, some may have a preferred design concept selected, and some may even have construction drawings and contract documents prepared. It would be unrealistic to expect such projects to be restarted to allow for the full planning process in accordance with the Act. Accordingly, a phasing-in provision is provided.

The proposed phasing-in provision permits projects at an advanced stage of planning to enter the Class EA planning process, without returning to earlier stages which are completed. In such cases, the Environmental Study Report will document the planning procedure following the stage most recently completed. An "advanced stage" of planning means any point in the planning process beyond Phase 1, up to the commencement of the preparation of contract drawings (see flow chart). For instance, take the case of a road widening project, costing more than $875,000 which is in the preliminary design stage of the planning flow chart. In this instance, the project justification has already been established, the preferred solution to the problem identified, and the best method of implementing the preferred solution selected.

There is no need to become involved in these phases of planning again, and the Environmental Study Report will document the status of the project from the time the Class EA is approved.

Such will be the case with projects at other stages in the planning and design process. Simply stated, when projects are in progress at the time the Class EA document is approved, they need only follow the prescribed Class EA planning process from that point on. Documentation in the Environmental Study Report will explain this. **However, if a project reaches the contract drawing stage (shown on the flow chart on p. 5) by October 11, 1987, the proponent of the project need not comply with the other requirements of this approval. "Contract drawing stage" means that stage where the planning and design of a project is complete such that drawings to be used for tendering purposes or during construction can be prepared for signature by the senior municipal official authorized for such purposes.**

Because the phase-in provision is an interim measure, its use will terminate three years and six months after the approval of the Class EA. However, exception may be made for long term projects where substantial progress is made throughout the three-year and six-month phase-in period.

2.0 PLANNING AND DESIGN PROCESS

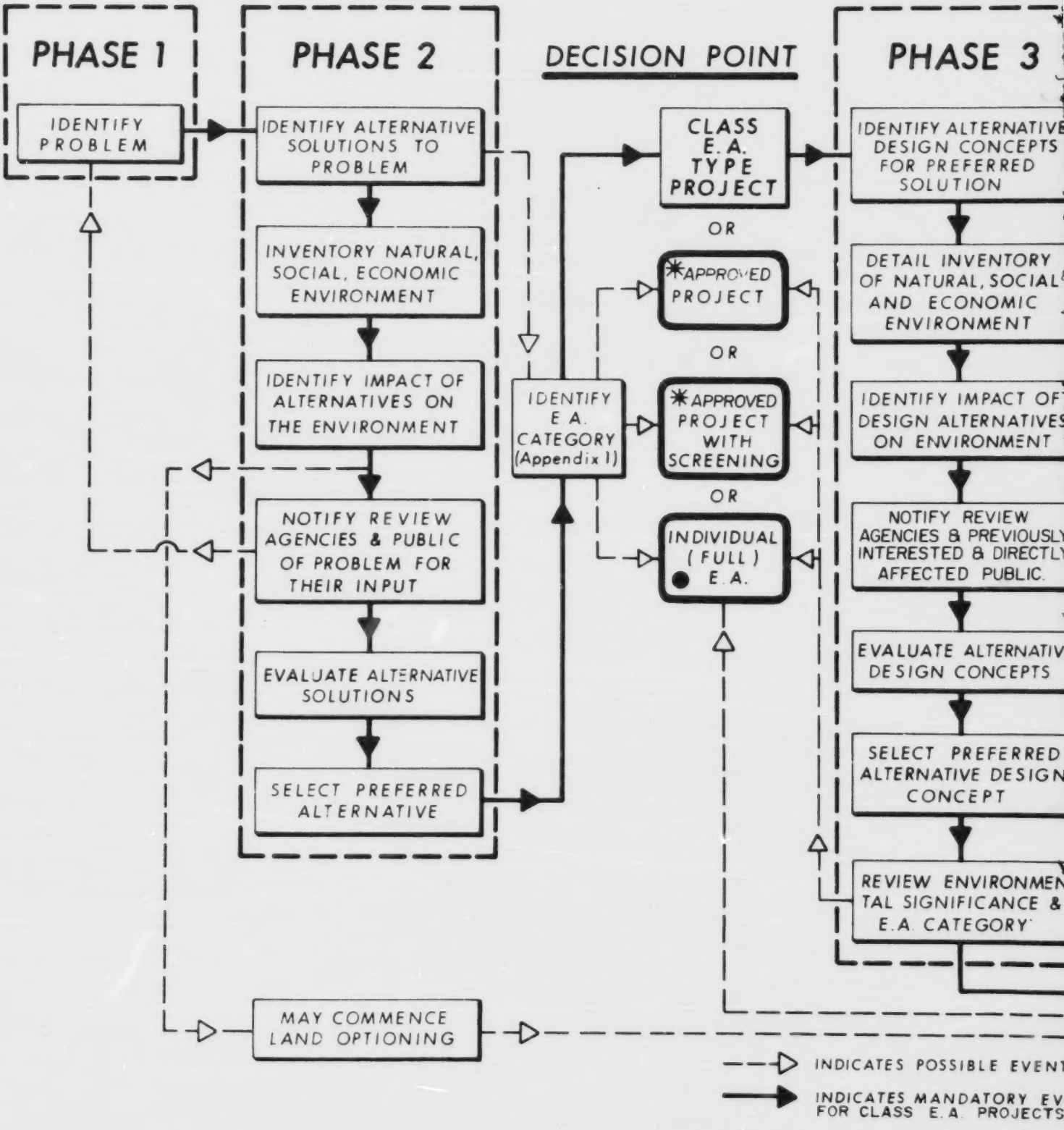
PLANNING AND DESIGN PROCESS

FOR

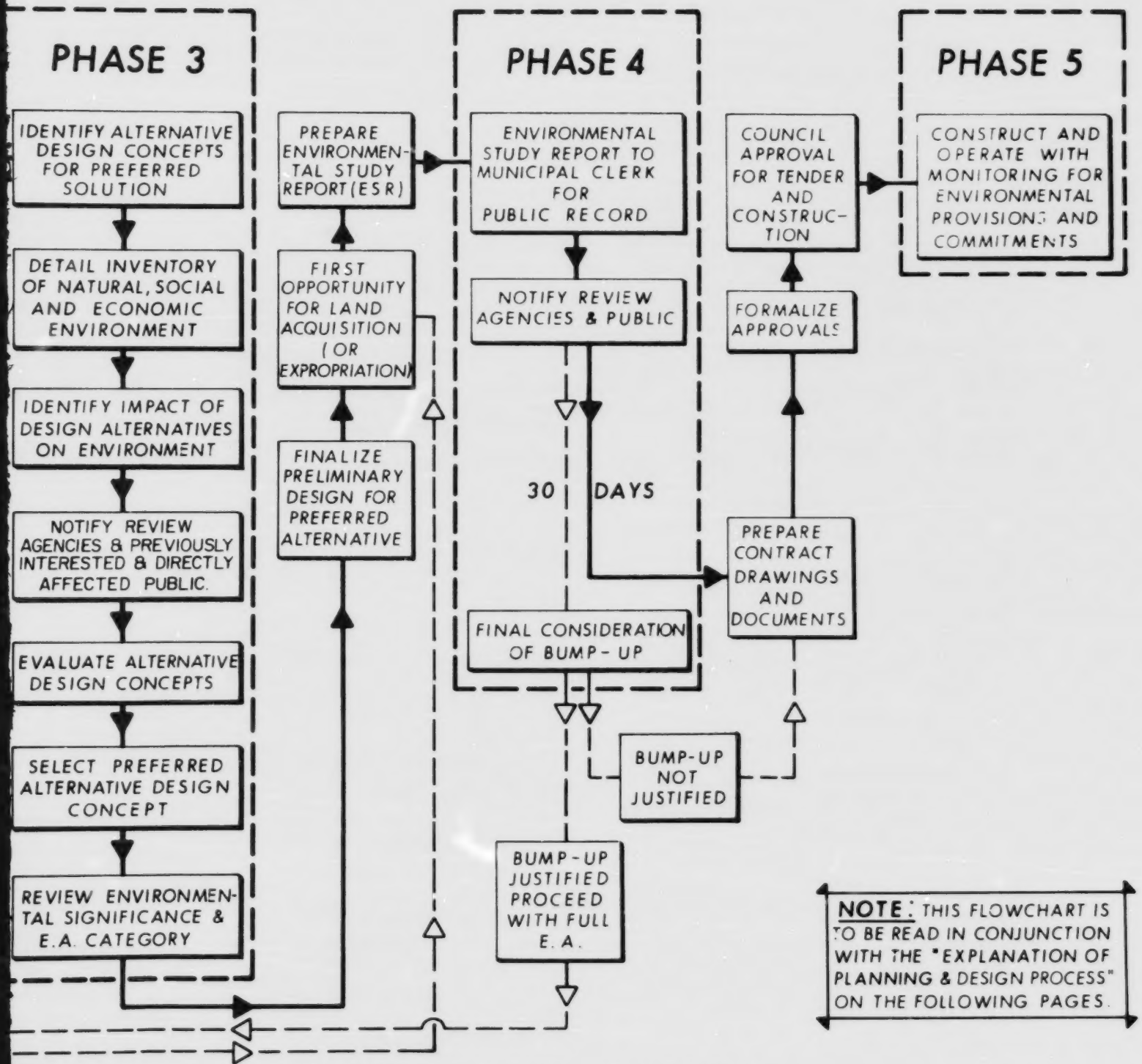
CLASS EA TYPE

MUNICIPAL ROAD PROJECTS

PLANNING & DESIGN PROCESS MUNICIPAL ROADS


PHASE 1
IDENTIFY PROBLEM
PHASE 2
IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM
INVENTORY NATURAL, SOCIAL, ECONOMIC ENVIRONMENT
IDENTIFY IMPACT OF ALTERNATIVES ON THE ENVIRONMENT
NOTIFY REVIEW AGENCIES & PUBLIC OF PROBLEM FOR THEIR INPUT
EVALUATE ALTERNATIVE SOLUTIONS
SELECT PREFERRED ALTERNATIVE
DECISION POINT
IDENTIFY E.A. CATEGORY (Appendix 1)
CLASS E.A. TYPE PROJECT
OR
*APPROVED PROJECT
OR
*APPROVED PROJECT WITH SCREENING
OR
INDIVIDUAL (FULL) E.A.
PHASE 3
IDENTIFY ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION
DETAIL INVENTORY OF NATURAL, SOCIAL AND ECONOMIC ENVIRONMENT
IDENTIFY IMPACT OF DESIGN ALTERNATIVES ON ENVIRONMENT
NOTIFY REVIEW AGENCIES & PREVIOUSLY INTERESTED & DIRECTLY AFFECTED PUBLIC.
EVALUATE ALTERNATIVE DESIGN CONCEPTS
SELECT PREFERRED ALTERNATIVE DESIGN CONCEPT
REVIEW ENVIRONMENTAL SIGNIFICANCE & E.A. CATEGORY
MAY COMMENCE LAND OPTIONING
INDICATES POSSIBLE EVENT
INDICATES MANDATORY EV FOR CLASS E.A. PROJECTS

GN PROCESS FOR CLASS E.A. TYPE CIPAL ROADS PROJECTS


PHASE 3
IDENTIFY ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION
DETAIL INVENTORY OF NATURAL, SOCIAL AND ECONOMIC ENVIRONMENT
IDENTIFY IMPACT OF DESIGN ALTERNATIVES ON ENVIRONMENT
NOTIFY REVIEW AGENCIES & PREVIOUSLY INTERESTED & DIRECTLY AFFECTED PUBLIC.
EVALUATE ALTERNATIVE DESIGN CONCEPTS
SELECT PREFERRED ALTERNATIVE DESIGN CONCEPT
REVIEW ENVIRONMENTAL SIGNIFICANCE & E.A. CATEGORY
PREPARE ENVIRONMENTAL STUDY REPORT (ESR)
FIRST OPPORTUNITY FOR LAND ACQUISITION (OR EXPROPRIATION)
FINALIZE PRELIMINARY DESIGN FOR PREFERRED ALTERNATIVE
PHASE 4
ENVIRONMENTAL STUDY REPORT TO MUNICIPAL CLERK FOR PUBLIC RECORD
NOTIFY REVIEW AGENCIES & PUBLIC
30 DAYS
FINAL CONSIDERATION OF BUMP-UP
BUMP-UP NOT JUSTIFIED
BUMP-UP JUSTIFIED PROCEED WITH FULL E.A.
COUNCIL APPROVAL FOR TENDER AND CONSTRUCTION
FORMALIZE APPROVALS
PREPARE CONTRACT DRAWINGS AND DOCUMENTS
PHASE 5
CONSTRUCT AND OPERATE WITH MONITORING FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS

NOTE: THIS FLOWCHART IS TO BE READ IN CONJUNCTION WITH THE "EXPLANATION OF PLANNING & DESIGN PROCESS" ON THE FOLLOWING PAGES.

CATES POSSIBLE EVENTS

CATES MANDATORY EVENTS CLASS E.A. PROJECTS ONLY

✱ PROPONENT MAY PROCEED WITHOUT PREPARING E.S.R.

● SEE GLOSSARY

Prepared by:
MUNICIPAL ENGINEERS' ASSOCIATION
COMMITTEE ON CLASS ENVIRONMENTAL ASSESSMENTS

2.2 EXPLANATION OF PLANNING AND DESIGN PROCESS FOR MUNICIPAL ROAD PROJECTS

DESCRIPTION OF CLASS EA PROCESS

The preceding flow chart illustrates the process followed in the planning and design of projects covered by this Class EA. The chart incorporates steps considered essential for compliance with the requirements of the Environmental Assessment Act. Steps required by the Act may be summarized as follows:

Phase 1

Identify the problem, i.e., determine the justification for a project.

Phase 2

Identify alternative methods of resolving the problem, bearing in mind environmental considerations, and establish the preferred solution.

Phase 3

Examine alternative methods of implementing the preferred solution, taking into consideration environmental effects, and methods of minimizing negative effects and maximizing positive effects.

Phase 4

Document, in an Environmental Study Report, a summary of the rationale behind the project as established through the above process and make such documentation available for scrutiny by review agencies, and the public.

Phase 5

Monitor construction to ensure adherence to environmental provisions.

The following details what is involved in each of the above five phases.

Phase 1

At present, most municipalities undertake projects only in response to certain identified deficiencies. Typical deficiencies include: traffic congestion, traffic hazards, structural deterioration, high maintenance demand, substandard geometrics, inadequate service facilities, etc. These problems may or may not be obvious to the public and the municipality, or identified as needing a certain type of improvement. Under the Environmental Assessment Act, it will be necessary to document factors which lead to the conclusion that improvement is needed.

Phase 2

Prior to the Act, improvements required to correct an existing deficiency may have been developed through an intuitive process which considered, primarily, criteria established by the Ministry of Transportation and Communications, financial constraints, and/or political demands. In some cases, this intuitive process did not consider impacts on the surrounding social and natural environments. The planning process required by the Environmental Assessment Act will entail not only a documentation of the intuitive process, but a much more comprehensive review procedure. This will involve:

1. Identification of alternative methods of solving the problem. For example, where a traffic capacity problem exists, there are many solutions, such as:

   a) improvement to signing or traffic control,

   b) reconstruction through adding traffic lanes,

   c) construction of an alternate route, and

   d) do nothing.

   This document is not intended to impose the Class Planning process on activities which are Approved or Approved Subject to a Screening Process. Maintenance or activities related to operation of an existing facility are exempt under the Act.

   The proponent should:

   1. Identify the problem (Phase 1).
   2. Identify alternative solutions to the problem (Step 1 of Phase 2).

   At this point, the proponent may arrive at the conclusion that the preferred solution is an activity which is, Approved, and therefore need not proceed further with respect to environmental assessment, or, Approved Subject to Screening, and therefore must follow the screening process.

   If the proponent considers that the preferred solution may fall into Schedule C, the proponent shall follow the planning and design process of the Class EA.

   Where the undertaking falls in Schedule C it should be noted that maintenance, operation and retirement activities are considered as part of the undertaking for the purpose of the identification and analysis of alternatives and their environmental effects.

2. Preparation of a physical description of the area where the project is to occur, and an inventory of the natural, social and economic factors to be considered when reviewing the effects of a project in that area.

3. Identification of the magnitude of the positive and negative effects of each alternative in Point 1, with respect to the environmental factors identified in Point 2.

   At this point options or conditional agreements for land may be obtained; however, the acquisition may not occur until after Phase 3.

4. Notification of review agencies and the public to solicit input. By making all interested parties aware of the problem and the area where the problem exists, certain other pertinent factors may come to light. Review agencies to be contacted, unless it can be concluded that they have no interest in the project, include:

a) Min. of Agriculture and Food (County Agricultural Representative)
b) Min. of Community & Social Services
c) Min. of Citizenship & Culture
d) Ministry of Energy
e) Ministry of Municipal Affairs
f) Ministry of Housing
g) Min. of Industry and Trade
h) Min. of Natural Resources
i) Min. of Northern Development and Mines
j) Min. of the Solicitor General
k) Ministry of Tourism and Recreation
l) Min. of Transportation and Communications (District Office)
m) Min. of Treasury & Economics
n) Min. of the Environment (District Office)
o) Conservation Authority
p) Niagara Escarpment Commission
q) Ontario Hydro
r) Affected municipalities

Methods of contacting the public include: individual notification, newspaper advertisements, or public notices posted in prominent locations. At this stage, it is important to make it perfectly clear that only those who respond within a specified reasonable time frame, and those directly affected by the undertaking, will receive notification during later stages of planning and design.

5. Evaluation of identified possible solutions, taking into consideration environmental and other factors, and selection of a preferred solution.

It must be borne in mind that the process identified above is not necessarily sequential. It could be an iterative process whereby the results of one step may necessitate re-evaluation of a previous step. For instance, under Point 2, factors to be considered would be identified; however, contact with the public and external agencies in Point 4 may bring to light additional factors which should be considered. Similarly, the economic situation may change such that the whole project must be re-assessed.

As indicated earlier, an informal, intuitive process, similar to that described above occurs now for most municipal projects, but may not be documented. Under the Environmental Assessment Act, it will be necessary to formalize the intuitive process such that the justification for a project and the selection of the preferred solution are documented.

THE PLANNING PHASE OUTLINED IN PHASE 2 WILL LEAD THE PROPONENT TO THE CONCLUSION THAT THE PROJECT IS: APPROVED: APPROVED SUBJECT TO THE SCREENING CRITERIA: SUBJECT TO THE CLASS ENVIRONMENTAL ASSESSMENT: OR IS SUBJECT TO FULL ENVIRONMENTAL ASSESSMENT.

This is a decision point, and the following assumes that the project is subject to this Class EA, based upon its scale and environmental significance.

Phase 3

Phase 3 proposes a formal process similar to that presented in Phase 2. The difference is that rather than dealing with alternative solutions, alternative design concepts for implementing the preferred solution are investigated. Actions to be taken are:

1. Identification of alternative design concepts for the preferred solution. For instance, in the case of a traffic capacity problem, it may be determined in Phase 2 that adding traffic lanes is the best solution. For this solution, there are various alternatives:

   a) widen one side,
   b) widen both sides,
   c) widen with a boulevard.

2. Preparation of a detailed inventory of the natural, social and economic environment. At this point, rather than dealing with the general environment of the area, the particular components of the environment which must be considered and compared with each other will be identified in detail. However, this need only be carried out to the extent necessary to select a preferred design.

3. The impact of each alternative design concept on the environment inventoried above shall then be established. By so doing, it is possible to compare the relative merit of each design concept.

4. Input from those who expressed interest or provided input in Phase 2 and those directly affected by the undertaking will again be solicited. Generally, interested parties are advised that a preferred solution has been selected and are given some detail as to what comprises it. It would be well to point out to those interested that the preferred solution was selected only after serious consideration of all environmental factors, including their previous input. At this point, they may wish to provide input with respect to specific concerns related to the alternative design concepts.

5. As in Phase 2, having identified all environmental factors which may be affected, having determined steps essential to minimizing impact on the environment, having gained further input from interested parties, and having a number of design concepts to consider in light of these factors, it is now possible to either:

   a) select a preferred design concept for final design and construction

   OR

b) update the environmental significance of the preferred concept, i.e., determine whether no further action with respect to the Environmental Assessment Act is necessary, or whether a full assessment procedure must ensue, or whether further steps in the Class EA process are in order.

At this point in the process, land acquisition, including expropriation where required, may be completed. Such acquisition shall not prejudice the proponent's decision to proceed, nor be given weight in any decision on the undertaking.

Phase 4

Phase 4 represents the culmination of the procedures followed during planning and design for compliance with the Environmental Assessment Act. An Environmental Study Report (ESR) is prepared, which illustrates the planning and decision-making process which has been followed, and the mitigating measures that will be taken to ensure that the Environmental Assessment Act has been adhered to. Depending upon the magnitude of the project, the Environmental Study Report will document:

1. A description of:

   a) the problem and other background information,

   b) the rationale employed in selecting a preferred solution to the problem,

   c) the rationale employed, including information and trade-offs made, in selecting a preferred design concept.

2. A summary of the involvement of review agencies and the public.

3. A summary of environmental considerations.

4. Mitigating measures to minimize the effects of the project on the environment before, during and after construction.

The ESR is filed with the Municipal Clerk and placed in the Public Record. It shall be made available for public scrutiny for at least 30 days after public notification of its filing. Subsequently, this document is to be maintained on file for public review. If objections result within the 30-day period, there should be an attempt by the proponent to resolve the problem with the objector. If this fails, however, it then becomes the responsibility of the Minister to decide whether the objection is justified, and therefore, whether further environmental assessment is required, (i.e., by the bump-up provision). No objections, of course, mean that the project may proceed.

Phase 5

The process leading to the Environmental Study Report, and the document itself, will point out the effects of a project on the environment, and the mitigating measures, if any, to be taken to eliminate or minimize such effects. Many of the identified mitigating measures must be taken during construction of the project, and it will be necessary for the proponent to monitor construction closely to ensure that such measures take place. The Environmental Study Report should clearly document any "Special Provisions", "Contract Specifications", or special design features that will be necessary to protect the environment. These must be included in the construction package such that they become a responsibility of the contractor and the municipal representatives inspecting the work. In all cases, the ESR will define the objectives of the monitoring program, and will document specific requirements for monitoring, appropriate to the particular circumstances and conditions under which the project will be constructed.

3.0 DESCRIPTION OF THE PROJECTS, PURPOSE AND ALTERNATIVES

3.1 NEW ROADS

DESCRIPTION

New road projects involve the purchase of a new right-of-way, and the construction of an improved surface for vehicular traffic on a new road allowance which is separate from any existing right-of- way. Where the project is a new road, the entire project is covered by this Class EA.

PURPOSE

To provide a new link in the road system for the following reasons:

1. to provide relief to congestion of an existing road system;
2. to shorten the travel distance between two points;
3. to provide access to a new location.

ALTERNATIVES

1. Widen or improve existing roads.
2. Provide alternative transportation facilities such as bus, train, rapid transit, ferry, etc.
3. "Do nothing" alternative.

It may be found that the sensitivities or costs associated with doing something outweigh the benefits derived from the improvement, and no further action is taken.

It may also be found that as a result of various considerations, the costs or sensitivities are such that it is better to "do nothing" for the present time. The decision to do nothing does not reduce the significance of the identified problem, but merely defers the project. This deferral can result in subsequent implementation of the original scheme, an alternative solution, or, if factors change dramatically, the further deferral of the project.

3.2 ROAD WIDENINGS, ADJUSTMENTS TO ALIGNMENT, GRADE AND CROSS SECTION AND OPERATIONAL IMPROVEMENTS (Climbing Lanes, Intersection Improvements, Bus Bays, Turning Lanes, Noise Barriers, etc.)

DESCRIPTION

Projects in this group involve the general widening of driving surfaces, changes to grades and cross-sections, the widening of the pavement to provide additional traffic lanes, and the installation of other operational improvements. They may involve the purchase of additional property and adjustments to alignment, grade and cross section. They may also include changes to the drainage system, modification of shoulders or slopes and the installation of medians, noise barriers, or lighting, etc.

PURPOSE

All road construction projects that take place on existing roads are undertaken for the purpose of correcting one or a combination of the following:

1. Structural Deficiency

Inadequacies in pavement, roadway base, and drainage on the existing road may result in poor ride quality which, if not corrected, may cause unsafe or other undesirable circumstances.

An existing road may have locations where the maintenance requirements are much higher than usual resulting in a large number of public complaints.

2. Capacity Deficiency

The existing road may currently be providing poor service to the user, in that congested traffic conditions are experienced frequently. Alternatively, traffic projections may indicate that this condition will occur in the near future. Anticipated traffic increases may represent a normal growth rate based on past trends plus future development; or, they may be substantial and sudden due to a specific development (i.e., new housing).

Restrictions to through traffic flow due to turning and stopping movements cause slow-moving or congested traffic conditions at certain times and locations. This reduces the traffic-carrying capacity of the road.

Congestion and poor service to the user on the existing road may also be due to restrictions in the ability of the road to carry traffic because of its design features. For example, narrow traffic lanes, or a lack of passing opportunities will decrease capacity and cause congestion.

3. Unsafe Conditions or Situations

A section of road may be out of character with, or built to a lesser standard than adjacent sections of the road. This may be particularly true of an urban road, either end of which may be adjacent to a rural highway of considerably higher design standards. Depending on the nature of the transportation system and traffic patterns, such situations can be confusing or irritating to the driver, and may lead to problems in road safety, as well as restrictions in traffic flow.

The existing road may exhibit an undesirable collision experience, possibly caused by various characteristics of the road, such as:

a) turning movements due to commercial and residential access points and intersecting public roads;

b) stopping, standing or parking movements due to the presence of commercial and other establishments;

c) pedestrian movements;

d) poor visibility at intersection and access locations and areas of pedestrian activity;

e) geometrics - other characteristics of the roads related to such things as horizontal alignment, grades, superelevation, lateral clearance of fixed objects, etc.;

f) structural condition of the pavement and/or base;

g) operational characteristics of the road, such as traffic control devices, illumination, turning lanes, etc.;

h) high traffic volumes;

i) a combination of these factors and others specific to the location.

4. Road Requirements Stemming from Land Use Development

Changes in land use may result in unsafe conditions or capacity problems as outlined above.

5. Road Requirements Stemming from Serious Noise Problems

Changes in land use or traffic volumes or mix may result in a significant increase in noise.

ALTERNATIVES

Any one or a combination of the above situations might lead to the decision to initiate a road project.

The suitability of alternative solutions to these situations will depend in part, on the nature and location of the deficiency, and on the cost of alternatives in both environmental and fiscal terms.

1. Structural Deficiencies

Where a structural deficiency is identified, the alternatives open for consideration are:

a) do nothing;

b) resurface existing road;

c) minor reconstruction and subsequent resurfacing of existing road.

All other things being equal when this type of situation exists, a more complex alternative solution is neither required nor appropriate.

Where a safety or geometric problem exists in addition to the situation described above, the alternative,

(d) minor realignment and adjustments to alignment, grades and cross-sections,

may be appropriate.

2. Capacity Deficiencies

When considering a capacity deficiency, the reasonable alternatives will very much depend on the specific location.

If the road is in a rural setting or in or near a community other than a large urban centre, the "highway mode" alternatives are generally the only reasonable options to consider. Low traffic volumes and the dispersed nature of passenger destinations preclude other non-highway modes, such as rail or subways, as viable alternatives. In large urban centres, subways or rail service may be considered as viable alternatives. In small urban centres, the bus mode may be the only viable alternative to the highway mode. Where capacity problems exist, the following alternatives are considered:

a) Utilize Existing Systems:

   (i) modify the existing facility through non-structural improvements such as signing or traffic controls;

   (ii) the diversion of traffic to other existing roads;

   (iii) widen an existing road through the addition of through traffic lanes;

   (iv) remove a deficiency elsewhere in the road network.

b) New Alignment where the problem cannot be solved by alterations to existing road. A new road may be considered (e.g., community by-pass).

c) Alternative Modes - if the road is in or near a large urban centre, or is a part of a high demand inter-urban corridor, in addition to the "highway mode" alternatives described above, "other mode" alternatives are also considered. These may include:

   (i) low capacity transit, e.g., bus;
   (ii) medium capacity transit (e.g., light rail transit; or
   (iii) high capacity (mass transit), e.g., subway.

d) Do nothing.

3. Unsafe Conditions or Situations

When considering a safety deficiency the reasonable alternatives will depend on the site specific conditions and the existing or future demands on the road system at that site. Geometric considerations are site specific and depend on the volumes and types of traffic (e.g., var. tables from the Geometric Standards for Canadian Roads and Streets published by the Roads and Transportation Association of Canada (RTAC)).

The following conditions and possible alternatives are illustrative only and not to be seen as all inclusive:

a) turning movements ...

   (i) by-law control (no turns)
   (ii) delayed or advanced green traffic signalization
   (iii) creation of turning lanes.

(b) stopping, standing ...

(i) by-law control
(ii) provision of off street parking
(iii) provision of parking lanes.

(c) pedestrian movements ...

(i) pedestrian grade separation
(ii) specific phase on traffic signalization
(iii) sidewalks
(iv) increased traffic lane widths.

(d) poor visibility ...

(i) modify grade and/or alignment
(ii) remove sight obstacle
(iii) lighting.

(e) geometrics ...

(i) reduce speed limit
(ii) modify grade, alignment, etc.

(f) structural condition ...

(i) see section 1.

(g) operational ...

(i) modify traffic patterns by by-law (e.g., no turns, one-way streets, etc.)
(ii) modify traffic patterns by restraint (e.g., traffic lights, stop signs, etc.)
(iii) modify traffic by additions to facility (e.g., turning lanes, etc.).

(h) high traffic volumes

see section 2.

(i) combination ...

any of the above.

4. Land Use Development Deficiencies

The alternatives available to remedy a road deficiency caused by the above have been described in the sections for safety and capacity. It is beyond the scope of this document to fully explore all of the possibilities open to municipalities relative to changes in land use which result in road deficiencies. Details will be addressed on a project specific case in the ESR.

5. Noise Deficiencies

A road may or may not have a noise problem. This would depend on such variables as:

- proximity to noise sensitive land uses (e.g., hospitals);
- existing residential setbacks;
- terrain;
- vegetation;
- road grade;
- volume of traffic;
- road surface;
- night traffic volume;
- truck traffic;
- stop/start experience;
- traffic speed.

If noise problems do arise, the following are possible alternative solutions:

a) relocate arterial from sensitive area;
b) realign road to increase set back;
c) change road elevation relative to noise recipients;

d) plant trees;
e) reduce grades of hills;
f) i. provide alternative routes
   ii. provide mass transit;
g) utilize "open" asphalt mix to reduce tire noise
h) prohibit trucks at night;
i) prohibit trucks;
j) provide for through traffic;
k) provide energy attenuation devices
   i. earth berms
   ii. fabricated barriers;
l) reduce traffic speed.

3.3 NEW OR IMPROVED INTERCHANGES, GRADE SEPARATIONS AND WATER CROSSINGS (Including Pedestrian, Recreational and Agricultural Crossings)

DESCRIPTION

Projects in this group involve the improvement to, or the addition of an interchange, grade separation or water crossing. See Glossary for the definition of an interchange, grade separation and water crossing.

PURPOSE

A problem best solved by the addition of an interchange will generally be expressed in terms of high existing or anticipated turning movements relative to the carrying capacity of an existing intersection or interchange, or the free flow of through traffic. An interchange provides a significant means of improving capacity by increasing the ability to handle turning movements by reducing conflict between through and turning traffic.

Collision experience and system compatibility may also contribute to the justification for an interchange.

A grade separation is generally justified in terms of high existing or anticipated volumes of road and/or rail traffic, possibly combined with a high collision experience.

Water crossing facilities are a necessary component of the road system. The purpose of replacement, modification or new roadway water crossing work is to correct either a structural deficiency, a functional deficiency related to transportation demands, or a functional deficiency related to hydrological conditions.

ALTERNATIVES

1. Interchanges

a) An Existing At-Grade Intersection

Where a capacity deficiency is identified at an existing at-grade intersection location, the alternatives open for consideration are:

i) do nothing;

ii) minor reconstruction, such as adding right or left turning lanes;

iii) modify the existing facility through non-structural improvements such as signing or traffic controls;

iv) minor reconstruction and adjustments to the horizontal and vertical alignment and cross-sections;

v) provide a grade separation;

vi) diversion of traffic;

vii) remove a deficiency elsewhere in the road network;

viii) add an interchange.

b) An Existing Interchange

Where a capacity deficiency is identified at an existing interchange location, the alternatives previously outlined, with the exception of v) and viii) are alternatives which may be considered. In addition, other possible considerations are:

i) add an interchange elsewhere in the road network, where connection is not presently provided;

ii) modify or replace the existing interchange.

c) No existing Intersection or Interchange

Where it is determined that a new interchange is necessary and no intersection or interchange currently exists, a wide range of alternatives should be considered including those under a) and b) above.

2. Grade Separations

a) An Existing At-Grade Location

Where a deficiency is identified at an existing at-grade road-rail intersection location, the alternatives open for consideration are:

i) do nothing;

ii) modify the existing facility through non-structural improvements such as signing, traffic signals, wig-wags, railway gates;

iii) reconstruction and adjustments to the horizontal and vertical alignment and cross-section;

iv) provide a grade separation.

b) An Existing Grade Separation (Road-Rail or Road-Road)

Where a deficiency is identified at an existing grade separation, the alternatives open for consideration are:

i) do nothing;

ii) increase width over the grade separation;

iii) increase width under the grade separation; or

iv) modify the grade separation to an interchange.

3. Water Crossings

When it is determined, as part of the planning process for a road project, that a new roadway water crossing is necessary, as part of that project, there are very few practical alternatives to the types of water crossings described within this report.

There may be exceptional circumstances where the body of water is of such width, or has such navigational requirements, that a tunnel, or surface water transportation system such as a ferry might be considered.

Depending on the environmental sensitivities, size and alignment of a watercourse, a watercourse diversion may be a feasible alternative. This would be most practical where a meander necessitates the construction of two crossings only a short distance apart.

A transportation deficiency, specific to a water crossing site, may require the replacement or modification of the existing roadway water crossing or the construction of a new roadway water crossing.

Alternatives to the above work are as follows:

a) Road Deficiences

i) do nothing;

ii) modify the existing facility through non-structural improvements such as signing or traffic controls;

iii) divert traffic to other existing roads (and water crossings) in the road network;

iv) remove deficiency elsewhere in the road;

v) restrictive signing or closure of the road; or,

vi) reconstruct the water crossing.

b) Hydraulic Deficiences

i) do nothing;

ii) increase hydraulic capacity.

3.4 SERVICE FACILITIES

DESCRIPTION

Projects in this group involve the construction of new patrol yards, winter maintenance facilities, parking lots, traffic control centres, weigh scale sites, etc.

PURPOSE

Road service facility projects are undertaken to correct one or more of the following problems:

(1) Increased road mileage to be maintained due to new construction or incorporation of roads into the Municipal road system;

(2) Existing patrol yards unsuitable because of property limitations, incompatibility with adjacent development or inadequate facilities;

(3) Lack of, or improperly located or inadequate patrol yards;

(4) Lack of, or improperly located or inadequate weigh scale sites;

(5) Lack of, or improperly located or inadequate traffic control centres;

(6) Lack of, or improperly located or inadequate parking facilities.

ALTERNATIVES

Any of the above problems or combination of problems could justify initiation of a service facility project. Where a deficiency is identified, the alternatives open for consideration are:

i) do nothing;

ii) build a new facility;

iii) increase the capability of a nearby facility;

iv) increase efficiency of operation of existing facilities; or,

v) utilize mobile or temporary facilities.

4.0 ENVIRONMENT

4.1 DESCRIPTION OF THE ENVIRONMENT

INTRODUCTION

The nature of a Class EA is such that it applies to numerous projects that could be carried out in any part of Ontario. A description of every component of the environment that might be encountered is therefore impractical. In order to help the reader in understanding the components of the environment that could be affected, a series of environmental settings are described. These are set out below under the basic headings of Urban and Rural.

Although these descriptions are general, the proponent shall describe in detail the environment to be affected by a specific project, in the Environmental Study Report. Review agencies and the public will therefore have an opportunity to understand the specific environment affected by a given project while it is being planned.

URBAN ENVIRONMENTAL SETTINGS

Urban areas vary not only in function but also in physical layout. For example, the approaches to an urban area may be characterized by strip development, or by the presence of industry. More than one environmental setting may appear in an urban area. Typical examples of environmental settings occurring in the urban Ontario landscape are as follows:

1. Stable Residential Areas

- primary land use is residential
- Official Plan (if existing) designates the area as residential area zoned for existing residential use
- free from redevelopment pressures
- adjacent areas relatively free from development pressures

2. Pressured Residential Areas

- primary land use at present is residential
- adjacent areas are, or are becoming, non-residential
- there may be pressures to revise the official plan, if one exists, to allow redevelopment to higher densities, commercial use, or both
- properties are zoned for more intensive residential use and/or non-residential uses.

3. Recreational Areas

- land use is a mixture of (natural) open space, recreational uses such as swimming pools, playing fields, arenas, etc., and possibly scattered residential buildings
- in some cases a lake/stream/marina/beach/cottaging area may be adjacent to the facility, or nearby, and tourism may therefore be significant in or around the area
- scattered pockets of commercial and/or industrial land uses may exist along the facility or be nearby.

4. Institutional Area

- primary land use is institutional

5. Commercial Areas

- primary land use is commercial
- zoning is commercial and commercial development exists or is imminent

6. Industrial Areas

- primary land use is industrial
- zoning is industrial and industrial development exists or is imminent

RURAL ENVIRONMENTAL SETTINGS

Typical examples of environmental settings occurring in the rural Ontario landscape are as follows:

1. Stable Agricultural Areas

- agriculture is the predominant land use; usually prime or high class farmland
- Official Plan (if existing) designates the area as agricultural area zoned for existing agricultural use
- adjacent area is relatively free from significant development pressures; no large urban areas in the immediate vicinity
- rural community, relatively stable social conditions
- very scattered commercial or residential land use along the highway; some rural concentrations (e.g., hamlets)
- field entrances, active farming is commonplace along the existing right-of-way.

2. Pressured Agricultural Areas

- agriculture is the main land use at present; usually there is a predominance of high class farmland
- farmland is under considerable pressure for non-agricultural development, e.g., dormitory residential development for nearby urban area; outward expansion pressure from adjacent urban area
- commercial and residential land uses occur regularly along the existing highway

- properties are zoned for non-agricultural uses.
- much of the agricultural land, especially adjacent to the existing highway, is under "speculative" control.

3. Recreational Areas

- land use is a mixture of natural open space, recreational uses, and scattered farming
- farmland is usually not prime quality and much pasture and meadow exists.
- intensive recreation uses, such as cottage development and tourism are significant in or around the area
- scattered commercial, industrial, and pockets of residential land use exist along the highway
- some Crown land and much forested "natural" open space.

4. Undeveloped Areas

- "undeveloped" landscape, in a relative sense; a predominance of trees, surface water scrubland, etc.
- much of the land is Crown land
- socio-economic structure relatively stable; very dependent on natural resources, and resource-based extensive recreational uses (canoeing, hunting, fishing, scattered cottage use, etc.)
- scattered commercial and residential land uses along the highway, often occurring in small clusters
- wood operations and mining activities may occur.

5. Commercial, Institutional and Industrial Areas

- primary land use is commercial, institutional or industrial
- the appropriate zoning exists and the appropriate development exists or is imminent.

4.2 DESCRIPTION OF THE EFFECTS ON THE ENVIRONMENT

INTRODUCTION

The purpose of this section is to outline the kinds of effects that are associated with the projects carried out under this Class EA. As discussed in the previous section, there are a myriad of conditions which can be encountered in site specific terms. This necessitates a general discussion of effects, although the effects of each site specific project will be documented in the ESR.

In the following tables, the indication of an effect does not necessarily show a negative effect, in some cases the effect will be positive.

The tables are presented in matrix form to relate the various projects undertaken by municipalities to various site specific environmental conditions that may be encountered. The proponent has attempted to quantify the likelihood of the site specific impact by a simple Yes or No determination. The category Yes/No indicates whether or not, in the majority of cases, an environmental effect might be encountered. This is to indicate the likelihood, and thereby the significance of the effect.

In the tables, the presence of a dot (●) indicates that a positive or negative effect is likely. If the cell is empty then an effect is unlikely.

New roads are likely to affect all aspects of the environment set out in the following tables, and therefore, have not been included in the tables.

	AGRICULTURE - removal of productive farm land	- disruption of field access from public roads	- disruption of tile & surface drainage systems	RESIDENTIAL/COMMERCIAL/INSTITUTIONAL: - effects on safety	- effects of temporary disruption during construction (dust, noise, detours, temporary loss of business etc.)	- effects of property loss (physical and financial)	- effects on social stress re: loss of home/business
MUNICIPAL ROAD WORK							
Is Condition Probable	Y	N	N	Y	Y	Y	N
Widen Driving Surface				●	●		
Adding Through Lanes	●		●	●	●	●	
Adjust Horiz. Alignment	●		●	●	●	●	●
Adjust Vert. Alignment	●		●	●	●	●	●
Change Cross Section	●			●	●	●	●
Turning Lanes				●	●	●	
Climbing Lanes				●	●	●	
MUNICIPAL STRUCTURES							
Is Condition Probable	Y	N	N	Y	Y	Y	N
Interchanges	●		●	●	●	●	●
Water Crossings	●				●	●	
Grade Separations	●		●	●	●	●	●
Noise Attentuations					●	●	
Pedestrian Crossing				●	●	●	
Agricultural Crossing				●	●	●	
Recreational Crossing				●	●	●	
MUNICIPAL FACILITY							
Is Condition Probable	Y	N	N	Y	Y	Y	N
Patrol Yards	●			●	●	●	
Winter Mtce. Facility	●			●	●	●	
Traffic Control Centres				●	●	●	●
Parking Lots				●	●	●	●

| TERRESTRIAL VEGETATION & WILDLIFE: | MUNICIPAL ROAD WORK | | |

	OUTDOOR RECREATION: - effects on environmental conditions in a recreation area	- temporary disruption due to construction	- effects on operations	- effects on quality of user experience	AESTHETICS: - effects on removal of vegetative/ cultural elements	- changing of compatibility with surroundings	- adjacent residents exposed to new view
MUNICIPAL ROAD WORK							
Is Condition Probable	Y	Y	N	Y	Y	Y	Y
Widen Driving Surface	●	●		●			
Adding Through Lanes	●	●		●	●	●	●
Adjust Horiz. Alignment	●	●		●	●	●	●
Adjust Vert. Alignment	●	●		●	●	●	●
Change Cross Section	●	●		●	●	●	●
Turning Lanes			●				
Climbing Lanes	●			●			
MUNICIPAL STRUCTURES							
Is Condition Probable	Y	Y	N	Y	Y	Y	Y
Interchanges	●	●	●	●	●	●	●
Water Crossings	●	●	●	●	●	●	●
Grade Separation	●	●		●	●	●	●
Noise Attentuation	●	●		●	●	●	●
Pedestrian Crossing	●	●	●	●			
Agricultural Crossing							
Recreational Crossing	●	●	●	●			
MUNICIPAL FACILITY							
Is Condition Probable	Y	Y	N	Y	Y	Y	Y
Patrol Yards	●	●		●	●	●	●
Winter Mtce. Facility	●	●		●	●	●	●
Traffic Control Centres					●	●	●
Parking Lots	●	●	●	●	●	●	●

	COMMUNITY EFFECTS: - change to tax base (loss/gain of business)	- effects on quality of life	NOISE AND VIBRATION: - effects of changes in noise and vibration levels	
MUNICIPAL ROAD WORK				
Is Condition Probable	N	Y	Y	
Widen Driving Surface		●	●	
Adding Through Lanes	●	●	●	
Adjust Horiz. Alignment		●	●	
Adjust Vert. Alignment		●	●	
Change Cross Section	●	●	●	
Turning Lanes	●	●	●	
Climbing Lanes			●	
MUNICIPAL STRUCTURES				
Is Condition Probable	N	Y	Y	
Interchanges	●	●	●	
Water Crossings		●		
Grade Separation		●	●	
Noise Attenuation		●	●	
Pedestrian Crossing		●		
Agricultural Crossing		●		
Recreational Crossing		●		
MUNICIPAL FACILITY				
Is Condition Probable	N	Y	Y	
Patrol Yards		●	●	
Winter Mtce. Facility		●	●	
Traffic Control Centres		●		
Parking Lots	●	●	●	

| | | |

	TOPOGRAPHY/LANDFORMS: - scarring of unique land forms	CLIMATIC FEATURE: - effect of vegetation removal on snow accumulations adjacent to facility	- change in air quality through addition or removal of particulants, gases, odors	FISH, AQUATIC WILDLIFE & VEGETATION: - effect of vegetation removal	- change in water quality	- effects of timing of construction activities on spawning & breeding periods
MUNICIPAL ROAD WORK						
Is Condition Probable	Y	Y	Y	Y	Y	N
Widen Driving Surface						
Adding Through Lanes	●	●	●	●	●	
Adjust Horiz Alignment	●	●		●		
Adjust Vert. Alignment	●	●		●		
Change Cross Section	●	●		●	●	
Turning Lanes	●		●			
Climbing Lanes	●		●	●	●	
MUNICIPAL STRUCTURES						
Is Condition Probable	N	Y	Y	Y	Y	N
Interchanges	●	●	●	●	●	
Water Crossings	●	●		●	●	●
Grade Separations	●	●	●	●		
Noise Attentuations	●	●				
Pedestrian Crossing						
Agricultural Crossing						
Recreational Crossing						
MUNICIPAL FACILITY						
Is Condition Probable	N	N	N	Y	Y	N
Patrol Yards				●	●	
Winter Mtce. Facility				●	●	
Traffic Control Centres						
Parking Lots				●	●	

4.3 MITIGATING MEASURES

DESIGN

Through the planning and design process described in this Class EA, it may be determined that certain projects have adverse effects on the environment. The Class EA process is intended to identify impacts and where possible, to avoid them. However, in some cases, this may not be possible. In such situations, measures will have to be taken to either minimize or offset such effects. Actions taken to reduce the effects of a certain project on the environment are called "Mitigating Measures".

During design, the environment affected by a project will be established and the specific net effects identified. Measures which must be taken to minimize the negative effects will be worked out such that the design can be tailored to recognize them. Contract drawings and documents may then include special provisions to ensure the least impact on the environment. Appendix 2 sets out a table showing typical mitigating measures for potential adverse effects on the environment.

Construction

This Class EA describes the process by which the various alternatives open to the planner and designer are analyzed, and the most suitable route and design is chosen. The construction stage presents another set of alternatives as to how the work will be undertaken.

The majority of projects which are subject to Class EAs will be carried out by contracts let by competitive tender, and the contractor is normally the low bidder. It is presumed that he will have costed the work and decided on his method of operation during the bidding stage, subject to the specifications and special provisions in the contract, and any relevant legislation.

Contractors differ in sequence of operation, techniques, methods of operation, type, make and size of equipment utilized, and speed of operation. There is, however, a fairly general uniformity in construction operation, being the natural result of economic competition.

Some of these operations have potential for environmental impact, and where these can be anticipated in the design stage, 'special provisions' shall be written into the construction package. They shall spell out what can or cannot be done during specific operations. Where a problem cannot be identified prior to construction, it shall be addressed on the site, and where significant, an addendum to the Environmental Study Report shall be written.

Staff responsible for inspecting the contractor's work must be made aware of such provisions, in order to ensure compliance during construction. It will be the responsibility of these inspectors to ensure compliance with the environmental provisions, as well as the traditional engineering provisions of the construction package.

5.0 PUBLIC INVOLVEMENT

5.1 OPPORTUNITIES FOR PUBLIC INVOLVEMENT

The purpose of public participation is to allow for an exchange of ideas between the proponent and the public. Such an exchange will help to avoid controversy, while broadening the information base in order to better facilitate good decision-making.

With this in mind, members of the general public shall be given the opportunity to provide input to Class EA projects. Information about the project and about the formal arrangements for citizen participation, when applicable, shall be available in the local media, through press releases and/or advertising, and at the local municipal offices.

Where practicable, local residents directly affected by the project shall be individually contacted by letter or information package. This includes property owners who are immediately adjacent to the project and/or communities in the study area which may be affected by the proposals. Material collected during the study shall be available to the public at points of public contact (as described below), or through communication means such as telephone or letter exchanges.

The timing of public involvement is indicated on the flow chart establishing the Planning and Design Process for Municipal Road Projects. This is shown graphically as the fourth box in the procedure allocated to Phase 2 and Phase 3. If by Phase 3 there have been no significant changes made to the project, only those individuals or groups expressing interest during the Alternative Solution stage (Phase 2), and those directly affected by the undertaking, shall be circulated subsequent information at the Preferred Solution Stage (Phase 3).

This does not mean that people coming forth at a later stage will not be heard.

Information Centres

There are a number of techniques available for involving the public in the undertaking, such as formal public meetings and mail-out information packages. It is expected, however, that an information centre, when applicable, will be the usual method of communicating with the public. This will normally be an informal arrangement which allows effective one-to-one communication. Other techniques of involving the public may be employed from time to time as circumstances warrant.

The first instance when an information centre may be held is during the "Identify Alternative Solutions to Problem" stage (Phase 2). This would likely be used to inform local residents of the need for the project, the planning and design details formulated to date, the design under consideration, and to provide a forum to discuss potential impacts and local sensitivities. Options identified by the public, external agencies, and the proponent are considered at this time.

The second instance when an information centre may be held is near the end of the "Identify Alternative Design Concepts for Preferred Solution" stage (Phase 3). Information centres held at this time will allow public discussion and evaluation of design alternatives before a final selection is made. On some projects, an information centre may be held to allow public reaction to be monitored.

The frequency and precise timing of these public contacts will vary with the complexity of specific projects. Complexity will be determined by such criteria as:

(a) the extent of property required for the project;
(b) the number of property owners affected by the project;
(c) the number of indirect effects such as access changes or road closings;
(d) the nature of controversial or sensitive public issues.

There should be sufficient flexibility to allow for additional public involvement, if necessary, on a project originally expected to generate little public response.

PUBLIC NOTIFICATION IS MANDATORY AT THREE POINTS IN THE PLANNING AND DESIGN PROCESS.

The first is during the consideration of Alternative Solutions to the Identified Problem (Phase 2).

The second is during the consideration of design concepts (Phase 3). As mentioned above, this need only involve those expressing interest at the first contact point and those directly affected by the undertaking.

The third is upon filing of the Environmental Study Report (ESR) in the Public Record (Phase 4). At this point a period of at least 30 calendar days following notification will be allowed for the public to view the ESR and provide comments to the proponent.

In those instances where a significant change to the project is made as a result of the comments received, an addendum to the ESR shall be considered.

Where a revision to an ESR is made, the potentially affected review agencies and the public shall be contacted immediately and provided with at least five working days after notification of the change, in which to respond.

In the event that a project is being proposed in response to an emergency, the proponent may elect to shorten the review period referenced above. This may only be done if consent is first obtained from all potentially affected persons.

At the first point of public contact the proponent shall outline the problem, indicate the planning done to date, indicate the planning schedule, and advise that the study is being done in accordance with an approved Class EA. The public shall be advised of their rights with respect to participation in the planning process and requesting a "bump-up". They shall also be told who to contact and where to find the Class EA.

Section 5.2 outlines the roles of the public and others in changing the group designation of the project from a class project to an individual assessment (i.e., a bump-up).

5.2 PROVISION FOR CHANGING PROJECT STATUS - (BUMP-UP)

It is recognized that in most cases the projects included under this Class EA will have relatively minor environmental effects, due to their small scale.

The degree of environmental impact, however, is not always directly related to project size or cost. This being the case, it is necessary to allow for special treatment of those projects that carry significant net negative environmental effects.

The mechanism for doing this is a procedure for elevating a project from the Class EA to an Individual Environmental Assessment status. The result is that an environmental assessment for that specific project must be submitted for formal review and approval under the Act. This act of elevating a project to an Individual or Full EA status is called a "Bump-up", and may result in a formal public hearing.

The procedure is:

1. a person with a concern brings it to the attention of the proponent;

2. if the concern is not resolved through discussions with the proponent, the person may request that the proponent initiate a "bump-up";

3. if the proponent refuses, and the person with the concern wishes to pursue the "bump-up", he may request the Minister of the Environment to direct the proponent to do an Individual EA for that project;

4. the Minister shall consider both sides of the argument and make a decision;

5. if the Minister agrees to "bump-up" the project, then he shall give notice with reasons to the proponent and the person requesting the "bump-up", that the Class EA approval does not apply to the specific project under discussion. The proponent is then required to prepare and submit an Individual EA for that project, or resolve the issue with the person requesting the "bump-up", or defer the project.

The proponent is free to continue to plan a project and carry out site preparation work up until notice is received that the project has been bumped-up. Other than site preparation work, the implementation of a project shall not proceed until: the Minister has notified the proponent that the request for a bump-up has been denied, or after 45 days have expired from notification of the request for a bump-up, in the absence of a decision of the Minister to approve the request.

6. if the Minister does not agree to "bump-up" the project, he shall give notice with reasons to the person requesting the "bump-up" and the proponent. The proponent is then free to continue to plan and implement the project.

The "bump-up" procedure may be initiated at any time during the planning process, up to 30 calendar days after the filing of the ESR in the Public Record, or five working days after receipt of notice of an ESR addendum.

It is expected, however, that anyone having a concern would bring it to the proponent's attention early in the planning process, when the proponent has maximum flexibility to deal with the concern.

An obvious delay in bringing forward a concern, and subsequent request for a "bump-up", is not as likely to be as effective as a concern identified early in the planning process.

6.0 DOCUMENTATION

6.1 ENVIRONMENTAL STUDY REPORT

Introduction

An Environmental Study Report (ESR) shall be prepared for each project which proceeds through the environmental assessment process described in this document. The ESR shall be prepared when design work has progressed to the point where the details of any environmental protective measures to be incorporated in the construction package have been finalized. The ESR shall be submitted to the clerk of the municipality, and the clerk shall ensure that the document is available for inspection by the public, government and private agencies. Copies of the ESR for Schedule C projects will be made available to review agencies upon written request. In the case of a bump-up, the ESR shall be submitted to the nearest MOE District Office immediately upon the proponent becoming aware of the bump-up request.

A notice indicating completion of the ESR and its filing with the clerk shall be issued to all parties, (public and government agencies), which have been previously contacted, and have indicated a desire to stay involved in the planning of the project. The notice shall indicate that the project may proceed to construction after 30 calendar days after notification of the ESR submission, unless a decision is made to do otherwise, or the project is bumped-up as a result of objections to the ESR being received within the 30 day period.

Format and Content

In general, the format and content of the ESR shall follow the outline below:

Where examples are used, it must be kept in mind that the examples are not all inclusive and site specific concerns will dictate what is to be included.

CHAPTER 1

INTRODUCTION AND BACKGROUND

The purpose of this chapter is to outline briefly:

- the ESR;
- the history and related studies;
- the purpose of the project;
- a general description of the project;
- the statement of the rationale for the project.

1.1 The Environmental Study Report

This section will describe in general what an ESR represents. For example:

> The ESR represents the documentation of the environmental assessment process for certain road projects for which a Class EA has been accepted and approved under the Act. The ESR documents the planning and design phase of a process which terminates with the construction of the project. It includes a discussion of the purpose of the project,

the project approach, the existing natural and social environmental conditions in the project area, the planning alternatives and design options considered, and the construction requirements associated with the implementation of the project. For Schedule C projects the ESR also addresses the maintenance, operation and retirement aspects of a project, the environmental effects expected from these, and the mitigation measures proposed.

1.2 Purpose of the Project

A description of the purpose of the project shall be included in this section. For example:

- a description of the identified problem
- an outline of the objective of the project.

1.3 Background

The significant aspects of the project's background not covered in Section 1.2 shall be outlined in this section. For example:

- project history
- related studies
- previous related environmental reports submitted to the clerk.

1.4 General Description of the Project

A general description of the project shall be outlined in this section and may include:

- the project location
- significant features of the project
- construction requirements
- environmental impacts and mitigating measures.

1.5 Statement of the Rationale for the Project

This section shall outline the rationale for the project, i.e.:

- a summary of the major findings and conclusions of the study
- a description of the other planning alternatives and design options considered during the course of the project.

CHAPTER 2

PROJECT APPROACH

The purpose of this chapter is to provide the reader with an understanding of the problem-solving and decision-making process utilized by the proponent, in order to resolve the identified problem(s) and any environmental concerns associated with the project.

A brief description is provided, therefore, of the manner in which the project was conducted.

2.1 The Environmental Assessment

This section shall briefly describe how the environmental assessment of the project was carried out. It shall include a short discussion of:

- the data collection
- the data analysis and the evaluation of impacts.

The above shall deal with the topic in general, and any detail shall be documented in the appropriate subsequent sections, e.g., Existing Conditions, Alternatives and Evaluation.

2.2 Project Stages and Organization

- time frame - planning, design, construction;
- project organization - project team, external team, etc.

2.3 Internal Involvement

- Other departments within the municipality which were involved in the project shall be identified, and the type and extent of their involvement shall be documented.

2.4 External Involvement

- Provincial ministries and agencies;
- Other municipalities.

The names of each of the above that were involved in the project shall be identified, and the type and extent of their involvement shall be documented.

2.5 Public Involvement

The type of public involvement, the extent, the number of meetings, those who were invited, and how notification of meetings was made, etc., shall be documented.

The manner in which the concerns identified by the public were addressed shall be documented.

CHAPTER 3

EXISTING CONDITIONS (Project Area)

The purpose of this chapter is to describe the existing natural and social environment, and the transportation engineering conditions of the project area.

3.1 Natural Environment

This section shall briefly describe the natural environmental setting of the project area.

3.2 Socio-economic Environment

This section shall briefly describe the socio-economic environmental setting of the project area. This shall include a statement or description of the adjacent land uses, cultural activities, heritage resources, and the past activities and future proposals in the project area. The economics of a project shall be given proper consideration.

3.3 Transportation

This section shall briefly describe the transportation conditions in the project area. These transportation conditions may include:

- traffic volumes - present and projected
- level of service
- collision experience
- operational problems
- railroads
- utilities
- drainage
- geotechnical

CHAPTER 4

ALTERNATIVES AND EVALUATION

The purpose of this chapter is to outline:

- the planning and design alternatives, and construction requirements that were considered to resolve the identified problem(s);
- the natural and social environmental concerns associated with the planning alternatives, design alternatives and construction requirements that were considered to resolve the identified problem(s).
- the decision-making process by which the planning alternatives, design options and construction requirements were evaluated, and accepted or rejected.

4.1 Planning Alternatives

The selected planning alternative, and the planning alternatives that were considered shall be outlined in this section. The following information shall be documented:

- the extent to which the alternatives solve the problem;
- the advantages and disadvantages of the planning alternatives;
- the effects of the planning alternatives on the natural and social environment;
- the decision-making process used to select the most appropriate planning alternative.

4.2 Design Alternatives and Design Options

The selected design, and the design alternatives that were considered shall be outlined in this section. The following information shall be documented:

- the extent to which the alternatives solve the problem;
- the advantages and disadvantages of the design alternatives and/or design options;
- the effects on the natural and social environment of the design alternatives;
- the decision-making process used to select the most appropriate design.

4.3 Construction Requirements

This section shall outline the construction requirements of the alternative designs. For example:

- timing constraints;
- restrictions on the disposal of construction debris;
- the taking of water from streams for dust control, etc.

CHAPTER 5

SELECTED DESIGN AND CONSTRUCTION REQUIREMENTS

The purpose of this chapter is to describe the project and related engineering and environmental concerns.

5.1 The Selected Design

The specific engineering and natural and social environmental features of the selected design shall be described in this section. Timing constraints, erosion control measures, etc., shall be included in the description.

5.2 Selected Design - Potential Environmental Impacts

The potential direct and indirect environmental impacts associated with the selected design shall be described in this section. This description shall include both beneficial and adverse environmental impacts.

5.3 Selected Design - Mitigating Measures

The mitigating measures incorporated into the design to minimize the potential adverse environmental impacts shall be described in this section. Design oriented mitigating measures such as noise abatement measures, landscaping schemes, permanent erosion control measures, etc., shall be included in this description.

5.4 Selected Design - Specific Construction Requirements

The specific construction requirements associated with the selected design shall be described in this section. For example:

- the movement of large volumes of erodible soil;
- drilling and blasting;
- construction activity adjacent to bodies of water.

5.5 Specific Construction Requirements - Potential Environmental Impacts

The potential direct and indirect environmental impacts associated with the specific construction requirements shall be described in this section. This description shall include both beneficial and adverse environmental impacts. For example:

- soil loss due to erosion;
- an increase in noise and vibration levels;
- alterations to water quality.

5.6 Specific Construction Requirements - Mitigating Measures

The mitigating measures incorporated into the construction package to minimize the potential adverse environmental impacts shall be described in this section. For example;

- the use of temporary mulches;
- a limitation on the hours of work;
- the use of cofferdams and sediment traps.

5.7 Summary of Identified Concerns and Mitigating Measures

This section shall provide a summary of the following:

- the engineering and environmental concerns identified during various stages of the project development;
- the mitigating measures incorporated into the design, or construction package.

5.8 Monitoring

This Section shall set out a proposed monitoring program, including a detailed description of the following:

- the key impacts to be monitored;
- whether monitoring is required during construction and/or operation of the facility;
- the period during which monitoring is necessary;
- the frequency and timing of surveys, the location of monitoring sites, the methods of data collection, analysis and evaluation;
- the content, manner and form in which records of monitoring data are to be prepared and retained;
- where, and for how long monitoring records and documentation will be on file and available for public scrutiny;
- in all cases, the ESR shall define the objectives of the monitoring program, and shall document specific requirements for monitoring, appropriate to the particular circumstances and conditions under which the project will be constructed.

APPENDICES

Appendices shall be included to provide technical support to specific aspects of the environmental assessment documented in the report.

The appendices may include:

- Press Releases
- Citizens' submissions and opinions
- natural environment - studies
- social environment - studies
- design options evaluation - table
- specific construction requirements evaluation - table
- level of service

6.2 REVISIONS AND ADDENDA TO ESR

Due to unforeseen circumstances, it may not be feasible to implement the project in the manner outlined in the Environmental Study Report. Any significant proposed modification shall be determined in consultation with potentially affected review agencies and the public. Where changes result, an addendum to the Environmental Study Report shall be written. This addendum shall describe the circumstances necessitating the change, the environmental implications of the change, and what, if anything, can and will be done to mitigate any negative impacts. The addendum shall be filed with the Environmental Study Report and notice of filing will be given immediately to all affected parties.

Five working days following notification of a change shall be allowed for review of the change and response by affected parties.

During this time, no work shall be undertaken that will adversely affect the matter under review.

The bump-up provisions may be invoked at this stage.

Provision for Review of Project

A time lapse may occur between the completion of the design process and the implementation of the project. In such cases, a review of the design process shall be carried out to ensure that the proposed project and any environmental mitigation measures are still valid.

If the period of time from notification of the filing of the ESR to the commencement of construction of a project exceeds three years, the proponent shall submit to the public record either the original ESR or an addendum. Notification of this submission shall be given, and a minimum of five working days shall be provided for review prior to the commencement of construction. The Bump-up provisions may be invoked at this stage.

If significant modification of the proposed project or any additional environmental mitigation is appropriate, an addendum to the Environmental Study Report shall be prepared and notice given.

7.0 CLASS EA AMENDING PROCEDURE

The purpose of an amending procedure is to allow for modifications to the Class EA approval after experience with its application has been gained. The reasons for such modifications may include:

1. Clarification of ambiguous areas of the document and procedure;

2. Streamlining the planning process in areas where problems may have arisen; or

3. Extension of the Class EA to projects that were not previously included.

The Minister shall consider all requests for amendment to the Environmental Assessment submitted by the proponents, or by the MEA on behalf of the proponents. If the Minister finds the amendment necessary, a Notice of the Proposed Amendment shall be issued to the public and any municipality, provincial ministry or agency that might be affected. At least 30 days shall be allowed for interested parties to comment. The Minister may refer the amendment to Cabinet for approval. If the amendment is approved, a Notice of Amendment shall be given to all persons who made submissions. A copy of the Notice shall also be placed in the Public Record.

7.1 TERMINATION OF APPROVAL

This approval shall terminate on the earlier of:

a) the date on which any new approval is issued for the undertaking under the Environmental Assessment Act or

b) the fifth anniversary of this approval.

However, the Minister of the Environment may from time to time specify a later date by notice in the Ontario Gazette. Within four (4) years following this approval, the proponents, or the MEA, acting on behalf of the proponents, shall advise the Minister of the Environment regarding the appropriateness of extending this approval.

APPENDICES

APPENDIX 1

STATUS OF MUNICIPAL ROAD PROJECTS UNDER THE ENVIRONMENTAL ASSESSMENT ACT

In developing an environmental assessment approach for municipal road projects, it is necessary to identify the types of projects that fall into the various categories of application of the Environmental Assessment Act.

The following schedules are intended to assist those working with the Class EA to understand the status of various projects.

NOTE: Where two or more environmental assessment approvals affect a municipal road project, to which this EA approval applies, the requirements of each EA approval shall apply, except to the extent the Minister has by notice in writing to the proponent, ruled that one or more provisions in conflict with another provision, shall not apply.

SCHEDULE A

The following projects are approved. The proponent may proceed without following the procedures set out in any other part of this Class EA.

- A road shown on a plan of subdivision as being part of the subdivision being approved pursuant to the Planning Act.

- The construction of a new road costing less than $3.5 million that is:

  1. to serve a municipally owned industrial, residential or commercial area, or

  2. to provide internal circulation in a municipal recreation area or park.

- A road provided in a subdivision agreement between a municipality and a subdivider.

- A road provided for in a development agreement between a municipality and a developer.

- Operation of roads and road related facilities where operation means: operating, maintaining and repairing where the purpose, use, capacity and location remain the same.

- Any reconstruction where the reconstructed facility will be for the same purpose, use, capacity and at the same location as the facility being reconstructed.

- Normal maintenance (e.g. shoulders, crack filling, slope repair, minor structure repair, snow fence installation and removal, highway fence replacement, sand blasting and painting).

- Owner initiated property transfers in hardship cases, land for fence property transfers, and land transfers at time of severances and as a result of site plan approvals where the ownership of land will not prejudice the evaluation of alternatives for an undertaking to which the Act applies.

- Utility removal, modification or relocation for safety or aesthetic purposes and new fence installations not associated with another undertaking.

- Grade separations costing less than $3.5 million.

- Culvert repair and replacement on intermittent streams where the capacity of the culvert is not increased beyond the minimum municipal standard or the capacity required to adequately drain the area, whichever is greater, and where there is no change in drainage area.

- Underpasses or overpasses for pedestrian, recreational or agricultural use costing less than $3.5 million.

- Shaping and cleaning existing roadside ditches.

- Highway landscaping not part of another undertaking, costing less than $3.5 million.

- Construction and replacement of entrances costing less than $3.5 million.

- Establishment and maintenance of minor roadside parks and picnic areas costing less than $3.5 million.

- Sidewalks or bicycle paths within existing rights-of-way.

- Gravel placement and reshaping on existing roads.

- Localized operational improvements costing less than $3.5 million (e.g., turning lanes, guard rail installation, etc.).

- Resurfacing, patching and frost heave treatment with no change to horizontal alignment.

- Ploughing and sanding.

- Stockpiling sand, gravel and fill.

- Stockpiling of de-icing material at existing service facility where the initial stockpiling was approved through a screening process, or was carried out at any time during the three year period immediately prior to approval of this Class EA.

- Snow and deicing operations that comply with MOE's "Guideline for Snow Disposal and Deicing Operations in Ontario, 1975."

- Traffic control devices (e.g., signing, pavement marking, signalization) costing less than $3.5 million.

- Safety projects (e.g., lighting, grooving, glare screens, safety barriers, energy attenuators) costing less than $3.5 million.

- Expansions, improvements and modifications to existing patrol yards and maintenance facilities where no additional land acquisition is required.

- Noise barriers costing less than $3.5 million.

- Restoration of a facility immediately after a natural disaster, provided the facility is for the same purpose, use, capacity and at the same location.

- Projects undertaken pursuant to the Local Improvement Act.

SCHEDULE B

The following projects are approved subject to screening. The proponent may proceed without fulfilling the requirements of this Class EA other than the screening process outlined in this Schedule. If the screening process results in other requirements of this Class EA being applicable, those requirements must also be fulfilled.

- All works not included on Schedule A costing less than $875,000.

- Expansions, improvements and modifications to existing patrol yards and maintenance facilities where additional land acquisition is required.

- Initial Stockpiling of de-icing material associated with an existing service facility.

- Retirement of existing roads and road related facilities.

NOTE: For these types of activities the proponent shall contact specific agencies when certain components of the environment are affected (see Screening Criteria below). For example, if in planning a road widening costing less than $875,000, it is determined that the project will directly affect a permanent water course, then the municipality shall contact the District Offices of MNR and

MOE. If either agency has a concern that cannot be resolved through discussions between it and the proponent, then the concern may be sent by either party to the Minister of the Environment for resolution. If the concern is significant enough, then an environmental assessment may be required by the Minister (i.e., through a bump-up). It is expected that this will not occur very often.

Bump-Up Under the Screening Process

The purpose of a "bump-up" provision being attached to the following screening process is to allow for individual environmental assessments for those approved projects having significant negative environmental effects.

In general, the procedure for a "bump-up" is as outlined in section 5.2 of this Class EA.

"Bump-up" requests for projects handled by means of the Screening Process may occur up to 30 calendar days after the project has been drawn to the attention of the public.

The project in this case shall be elevated from an approved status to an Individual EA status. The reason for doing this, rather than placing it under the Class EA, is that it is unlikely that a conflict that could not be resolved between the proponent and the concerned person under the approved status, could be resolved under the Class EA. The Individual EA process, on the other hand, allows for third party arbitration and, where necessary, a public hearing.

Notification of Potentially Affected Public Under Screening Process

In the case of notification for those projects that are approved with screening, the notification shall be made early in project planning.

The proponent may select the method of notification that is appropriate for the specific project under consideration. The methods may range from individual notification to newspaper notices. It is important that those potentially affected by the project are notified early enough in the process that their comments can be reflected in project planning.

SCREENING CRITERIA FOR UTILIZATION IN ASSOCIATION WITH SCHEDULE B TYPE PROJECTS

Situation	Example	Contact
Works directly affecting:		
Permanent and intermittent water courses and water bodies	- streams, creeks - marshes, bogs - lakes, ponds	- Conservation Authority - MNR District Office - MOE District Office (or other appropriate MOE offices)
Groundwater	- wells, aquifers - groundwater recharge areas	- Local Health Unit and/or MOE District Office
Rare, endangered or significant assemblages of wildlife, fish and plant species	- list pursuant to the Endangered Species Act - game species - regionally significant wildlife, fish and flora	- MNR District Office - Conservation Authority
Environmentally sensitive area	- sensitive area as identified in MNR's or Conservation Authority's plans	- MNR District Office - Conservation Authority
Hazard Lands	- unstable soils - steep slopes - floodplain land	- MNR District Office - Conservation Authority
Woodlots	- Agreement Forests	- MNR District Office
Ornamental or Street Trees	- trees on municipal land	- Owner of property immediately adjacent to lands containing trees

Situation	Example	Contact
Works directly affecting:		
Recreational Areas	- Provincial Parks and park reserves - Conservation areas - Niagara Parks Commission - National Parks	- Owner of recreational property
Tourist Facilities	- motels, - restaurants, scenic lookouts	- Ministry of Tourism and Recreation
Historical or Archaeological Resources	- historic buildings/ bridges - scenic areas - historic archaeological sites - see MCC's Heritage Guidelines	- Ministry of Citizenship and Culture (MCC) - Local Heritage or Historical Group including local Architectural Conservation Advisory Committee
Social Service Facilities	- homes for the aged - psychiatric homes - group homes, - hospitals	- Ministry of Community and Social Services District Office
Transportation Service Facilities	- highways - navigable waters/harbours - airports - St. Lawrence Seaway	- Ministry of Transportation and Communications, District Office - Federal Department of Transport
Utilities	- electrical, telephone, oil, gas pipelines	- Utility Companies

Situation	Example	Contact
Works directly affecting:		
Sensitive or Special Planning Areas	- regionally significant growth centres, major industrial parks, subdivisions - development in Northern Ontario	- Ministry of Housing - Min. of Municipal Affairs - Min. of Industry, Trade & Technology - Ministry of Tourism and Recreation - Ministry of Treasury and Economics - Min. of Northern Development and Mines
Class 1-4 Agricultural land and Special Agricultural Areas		- Ontario Ministry of Agriculture and Food - Local Agricultural Representatives
Niagara Escarpment Planning Area		- Niagara Escarpment Commission
Parkway Belt Planning area		- Plans Administration Branch, Central and Southwest, Ministry of Municipal Affairs
Land not owned by the municipality	- adjacent property owners	- property owner-individually or in groups
In all cases	- every situation	- adjacent property owners, potentially affected members of the public and local area and regional municipalities

SCHEDULE C

Subject to the unconditional approvals and conditional approvals cited in Schedules A and B, the following projects are subject to the procedures of the Class EA process, unless a proponent determines that an activity listed in this Schedule merits an individual environmental assessment based on its scale and environmental significance. The proponent shall then prepare an environmental assessment for the project and the approval under the Class EA shall not apply to it anymore.

- New roads.
- Widening of an existing highway in order to change the use, purpose, capacity or location of the facility.
- Adjustments to alignment, grade and cross-section. (Refer to the fifth and sixth items in Schedule A on page 52 and the definition of Same Purpose, Use, Capacity and Locations on page XII.)
- New interchanges.
- New grade separations costing $3.5 million or more.
- New water crossings not associated with a new route or major realignment.
- Modified water crossings. (A change in purpose, use, capacity or location where capacity refers to either hydraulic or road).
- Service facilities (e.g., patrol yards, winter maintenance facilities, traffic control centres, parking lots).
- Operational improvements costing more than $3.5 million.
- Noise attenuation costing more than $3.5 million.
- Underpasses and overpasses for pedestrian, recreational or agricultural use, costing more than $3.5 million.

APPENDIX 2

TYPICAL MITIGATING MEASURES FOR POTENTIAL ADVERSE ENVIRONMENTAL EFFECTS

Chapter 4.3 refers to the mitigation of potential adverse environmental effects. This appendix provides examples of possible site specific effects, and the measures which can be taken to mitigate those effects.

This list is illustrative only and the proponent shall be required to address the project's specific effects during the planning and design process, and document these effects and the mitigating measures (if any) in the Environmental Study Report.

TYPICAL MITIGATING MEASURES FOR POTENTIAL ADVERSE ENVIRONMENTAL EFFECTS

Effect	Mitigating Measures	Application (Where/When)
Surface Drainage System		
Sedimentation and turbidity of adjacent water bodies	- erosion control measures	During construction on slopes and drainage channels
	- sediment traps	Collect sediment before entering drainage channel
	- staging work	During biologically critical periods
"Ponding" effects on adjacent properties due to natural drainage disruption	- appropriate use of culverts, porous backfill and tile drains	In new construction projects and expansion
Streambank erosion from diversion and/or channelization of watercourse	- erosion control measures	River crossings, outfall construction
Contamination of surface waters through runoff, spills and leaks	- provision for spill control - fast accurate reporting of spill - spill containment - stockpile materials or devices for spill control - avoid adverse soil conditions - monitor facility for leaks	As a general practice and particularly in vicinity of water bodies, wetlands
Blasting which exposes rocks containing soluble minerals that could potentially contaminate surface water supply, i.e., sulfate, lead, arsenic	- subsurface investigation, i.e., geochemical analysis of bedrock - avoid blasting in areas containing toxic materials	Areas of shallow soil over relevant bedrock type (normally occurring in Canadian Shield)
Changes in volume of surface runoff	- use design measures to minimize increase in surface runoff	New impervious surfaces

Effect	Mitigating Measures	Application (Where/When)
Changes in flood storage capacity by placing fill and structures in floodplain	- avoid placing fill and structures in floodplain or compensate elsewhere	Construction within river valleys Disposal of excess fill
Groundwater		
Blasting which exposes rocks containing soluble minerals that could potentially contaminate groundwater, e.g., sulfate, lead, arsenic	- subsurface investigation, i.e., geochemical analysis of bedrock - avoid blasting in areas containing toxic minerals	Areas of shallow soil over bedrock
Truncation of shallow aquifers and springs	- hydrogeologic investigation to identify such areas in advance	Excavations
Reduced groundwater quantity through construction dewatering	- avoid groundwater users and water-bearing formations (soils) - proper dewatering techniques	Truncation of shallow aquifers and spring by groundwater utilization
Spills or leaks resulting in contamination of groundwater supply	- construction refueling precautions - landfilling precautions - operation and storage precautions	Near watercourses and on site generally
Drainage of wetland areas resulting in a reduced groundwater contribution to surface water bodies	- avoid wetland areas - utilize appropriate backfill material, i.e., highly permeable backfill is unsuitable	Trenching, excavating, placing fill
Reduced surface water recharge to groundwater particularly in soils with high infiltration characteristics	- restrict extent of impervious surfaces in zones of high infiltration	Subsurface barriers, e.g., foundations, areas of impervious surfaces, e.g., parking lots, roads, compaction of soil
Impedence of groundwater movement	- maintenance of the existing groundwater flow regime through engineering design	Dewatering, e.g., in roadbeds, foundations and trenches

Effect	Mitigating Measures	Application (Where/When)
Contamination of adjacent wells through runoff from road construction	- erosion control - locate projects appropriately	Construction adjacent to well sites
Fish, Aquatic Wildlife and Vegetation		
Introduction of warmer water from ponds into colder surface watercourse	- appropriate selection of ponding site - infiltrate into groundwater system	Dewatering of trench and excavations Sediment traps
Modification or removal of aquatic habitat Displacement of plants and animals	- stage work to non-critical times - restore stream substrate - choose suitable site for stream diversion	During construction, e.g., river crossings, and dewatering of excavations
Reduced water quality of nearby surface water having value as wildlife habitat	- provisions for spill control - fast and accurate reporting of spill - spill containment - stockpile materials or devices for spill control - avoid adverse soil conditions - minimize tree removal	Storm sewers and ditches
Timing effects of construction on spawning and breeding periods	- staging of work to avoid spawning and breeding periods	For stream crossings and diversions
Lowering of water table resulting in reduced contribution to streams and stress on riparian vegetation	- design to maintain existing groundwater flows - restrict extent of impervious surfaces in zones of high infiltration	Dewatering of trench and excavations Areas of newly created impervious surfaces
Increased nutrient status of existing habitats	- provisions for spill control - landfilling precautions	Near watercourses and on site generally

Effect	Mitigating Measures	Application (Where/When)
Fish, Aquatic Wildlife and Vegetation (cont'd)		
Drainage of wetland areas causing mortality or stress to animals and possible changes in species composition	- maintain existing groundwater regime - avoidance of wetland areas - utilize appropriate backfill material, i.e., highly permeable backfill is unsuitable	Trenching or excavating
Siltation to surface watercourses resulting in "smothered" plants and animals due to deposition of silt and increased turbidity to surface watercourses	- utilize suitable backfill material - trench drainage should be discharged to settling areas before being permitted to enter surface waterbodies - erosion control measures - staging of work	Trench road bed and ditch constructions Storm sewer outfalls Erodible soils, stockpiles
Pressure on biological communities	- consider the carrying capacity of the local natural environment	Road facilities allow enhanced municipal/population growth. This increases stress on recreational and natural resources
Tree removal affecting the amount of sunlight reaching waters and affect plant productivity and increase watercourse temperatures	- avoid tree removal near surface waterbodies	Stream crossings
Terrestrial Vegetation and Wildlife		
Introduction of exotic plant species through erosion control measures and restoration	- use annuals which later die out - use indigenous (native) species only	On slopes and other areas to control erosion In any disturbed area requiring restoration work

Effect	Mitigating Measures	Application (Where/When)
Terrestrial Vegetation and Wildlife (cont'd)		
Changes in vegetative composition as a result of loss of topsoil and subsoil or mixing	- restore site by replacing soil in preconstruction horizons	Trenching or excavating
Removal or disturbance of significant trees and/or ground flora	- avoid these areas - employ tree protection measures	During construction phase of any project
Road salt contamination	- contained storage	Patrol yard. Winter maintenance facility
New or increased exposure of forest edge with resultant effects of windthrow, leading to increased loss of habitat for wildlife	- avoid woodlots and similar areas - pre-stress woodlots	During construction phase of any project
Mortality/stress due to changes in soil moisture conditions, resulting in loss of wildlife habitat	- avoid poorly drained areas - use of appropriate roadbed and backfill materials - revegetate using indigenous species able to survive new conditions	During construction of roadbed and storm sewers
Heritage Resources		
Deterioration of sites or structures having archaeological, historical or architectural values, as a result of environmental changes.	- employ necessary steps to decrease harmful environmental impacts such as vibration, alteration of water table, etc.	Where appropriate with respect to archaeological, historical or architectural resources
Unwanted increase in public access and potential vandalism	- fence off area of concern - prevent public access	Where appropriate with respect to archaeological heritage resources
Threatened viability of, or opportunity for, retention of sites with heritage value	- avoid these areas	Where appropriate with respect to archaeological heritage resources

Effect	Mitigating Measures	Application (Where/When)
Heritage Resources (cont'd)		
Unavoidable destruction of heritage structures or archaeological sites	- record or salvage information on features to be lost	Where appropriate with respect to significance of the heritage resource
Agricultural		
Removal of productive farmland	- design facilities so as to minimize land requirements and construction disturbance; rehabilitate disturbed areas	In rural areas
Disruption of field access	- provide alternative access points at critical times	In rural areas
Disturbance of livestock by noise and dust during construction	- employ noise and dust control measures	In rural areas
Disruption of tile and surface drainage systems	- stage construction work - restore tile and surface drainage system	In rural areas
Effects on crops of contaminants from runoff and salt spray	- location - plant salt tolerant species barrier along roadways	In rural areas
Residential, Institutional, Commercial and Industrial		
Increased sound levels due to new or expanded road facility	- maximizing distance between lanes and possible impact areas, i.e., adjustments to horizontal alignment - adjustment to roadway gradient - regulating traffic flow and speed - use of quieter pavement type - designation of truck routes and applicable time periods	Where noise or vibration problem

Effect	Mitigating Measures	Application (Where/When)
	- installation of sound barriers - adjustment to roadway elevation, i.e., adjustment to vertical alignment - application of noise control measures off the road right-of-way where the impact is expected to be severe, i.e., apply localized noise control measures to impact areas rather than the roadway itself - advise on the suitability of local planning policies affecting the impact area	
Disruption of pedestrian movements between adjacent uses	- maintain continuity of pedestrian walkway system as much as possible	As general practice
	- provide walkway strips to adjacent residential areas	Where suitable
	- provide crosswalks and sidewalks at access points	Where suitable
Facilities inconsistent with or which disrupt character of area	- preserve existing amenities as much as possible	As general practice
	- landscape buffer areas	Where suitable
	- design and site structures to blend with adjacent building forms and materials	As general practice
	- grade site area to pleasing lines, utilize berms	Where suitable

Effect	Mitigating Measures	Application (Where/When)
Temporary disruption during construction and/or inconvenience to users of adjacent properties and building	- notify public agencies and adjacent owners of construction scheduling	Where substantial inconvenience or disruption to adjacent uses would be experienced and where measures would substantially reduce effects
	- prepare 'emergency program' to ensure quick resolution of servicing problems	As general practice
	- consult with public agency and/or adjacent landowners regarding temporary access re-routing	
	- schedule construction so as to minimize period of disruption in proximity of adjacent uses and structures	
Removal of residences and other buildings	- co-ordinate removal program to minimize inconvenience	As general practice
Outdoor Recreation		
Temporary disruption of open space activities during construction	- employ noise and dust control measures - staging of construction to cause least disruption	In areas within or adjacent to public open space
Effects of physical changes in layout of recreational uses due to property loss	- compensate elsewhere	In areas within or adjacent to public open space
Soils Geology		
Erosion by wind and water	- revegetation - stage work - avoid highly erodible soils	Erodible soils in excavations, cut and fill areas

	- stabilize slopes:
	  - compaction
	  - chemical stabilizers
	  - gravel blankets
	  - seeding
	  - sodding
		Stockpiles, cut slopes

Effect	Mitigating Measures	Application (Where/When)
Slumping of encroached slopes	- avoid potentially unstable slopes	Steep slopes
	- mechanical stabilization methods	Cut slopes
	- revegetation (only effective once the root infrastructure has developed)	Removal of the toe of a slope during construction
	- restrict dewatering near slopes	Dewatering
Rockfall hazard	- buffer zone	Blasting
	- initiate rockfall at potential failures	Steep weathered slopes
Loss of aggregate and mineral resources	- avoid sites of aggregate and mineral reserves	Zones of economic aggregate and mineral occurrence
	- extract aggregate and minerals prior to construction	
Contamination of soils by petrochemicals, etc.	- remedial measures to avoid spills and leaks	During construction
	- contingency plan for clean-up	
Contamination of topsoil with subsoil	- stripping and stockpiling of topsoil and stabilization	Generally in areas of undisturbed soils
Topography/Landforms		
"Scarring" of unique features	- avoid unique features	Designation of unique feature, i.e., landmark
Climatic Features		
Removal of vegetation causing reduction of windscreen effect on adjacent buildings or activity	- retain as much vegetation as possible	Construction in close proximity to buildings or activity areas
	- avoid vegetated areas in close proximity to buildings or activity areas	
	- restore vegetation as soon as possible	

Effect	Mitigating Measures	Application (Where/When)
Public Health		
Exhaust emissions from construction equipment and vehicles	- minimize operation on site, control location on site	Where adjacent uses or natural vegetation could be adversely affected
Effects on groundwater elevation on existing subsurface sewage disposal systems (e.g., septic systems)	- monitor groundwater levels and, if necessary, take appropriate action	Where appropriate
Groundwater contamination	- construction refueling precautions - landfill design and operation precautions - precautions in operation and storage facilities - containment of leachate from salt storage areas and/or maintenance facilities	On site generally

APPENDIX 3

ONTARIO'S ENDANGERED SPECIES LIST*

1. Blue racer, Coluber constrictor foxi Baird and Girard
2. Timber rattlesnake, Crotalus horridus horridus Linnaeus
3. Peregrine falcon, Falco peregrinus anatum Bonaparte
4. Bald eagle, Haliaeetus leucocephalus alascanus Townsend
5. West Virgina white butterfly, Pieris virginiensis Edwards
6. Lake Erie water snake, Natrix sipedon insularum Conant and Clay
7. Piping plover, Charadrius melodus Ord
8. Eskimo curlew, Numenius borealis Forster
9. Golden eagle, Aquila chrysaetos Linnaeus
10. White pelican, Pelecanus erythrorhynchos Gmelin
11. Mountain lion or eastern cougar, Felis concolor couguar Kerr
12. Small white lady's-slipper orchid, Cypripedium candidum Muhl
13. Kirtland's warbler, Dendroica kirtlandii Baird
14. Small whorled pogonia, Isotria medeoloides (Pursh.) Raf.

* According to the Endangered Species Act.